

**Portfolio of Compositions with accompanying
Composition Commentary**

Thesis submitted in accordance with the requirements of the
University of Liverpool for the degree of
Doctor in Philosophy

By

Michael Beiert

December 2015

Volume I

Portfolio of Compositions

Compositions

Distant Cousins (2011)

Flinch (2012)

Skein (2013)

Together-Apart (2013)

Closer (2014)

39 (2014)

Hope Street (2014)

I Can Feel His Mouth (2015)

Hidden Within (2015)

Michael Beiert

Fline

for piano and electronic sound

2012

Duration: ca. 21 minutes

Instrumentation

Piano
Electronic Sound (stereo)

System Requirements:

Apple MacBook, 2 high quality powered loudspeakers, soundcard (optional), Ableton Live Suite 9.0 or higher, 'Fline' Ableton Live project files and 'Fline' audio files.

The different audio files (labelled 'Fline1', 'Fline2', 'Fline3' and 'Fline4') should be loaded into the four instances of the *GlitchLooper* and *OpenSec* MaxForLive devices respectively prior to performance. The two loudspeakers should be placed inside the piano facing upwards towards the open lid. The sound volume must be adjusted carefully not to overpower the piano performance. An impression should be given that the electronic sounds are emanating from the piano itself.

Structure and Content of the Work

Fline is a study in resourcefulness – both the score and the electronic part of the composition are derived from a single, 4-minute piano recording.

'Extracting' musical shapes from the recording by means of computer analysis provided the rhythmic skeleton for the musical score. For the electronic part, the same recording is 'deconstructed' into little fragments which are re-arranged and then re-assembled live using custom programmed computer algorithms. The result: an abstract sound formation, which varies from performance to performance, providing the electronic accompaniment to the live instrument.

While the score is 'fixed' – as 'fixed' as a score can be – the electronic part is left indeterminate with respect to its performance, i.e. the order and frequency of occurring sound events.

The two 'Fline' Ableton Live projects (first and second movement) should be set in motion prior to the start of the piece with the respective Master faders all the way down. The electronic sound should be faded in during the first long fermata on page 1 in the first movement, and during bars 4 and 5 in the second movement. Preferably, a person other than the pianist should perform this task in order to allow the player to concentrate on the score. The additional person should be in charge of the laptop and ensure that the volume of the electronic accompaniment will not be excessively louder than that of the piano during the performance. To that extend, the volume of the electronic sound may be adjusted continuously throughout the performance ("riding the fader") as a way to react dynamically (and musically) to the material being played on the piano. The person operating the laptop should also fade out the electronic accompaniment at the end of the first and second movement respectively.

Flin

for piano and electronic sound

1st Movement

Expressively

♩ = ca. 55 (*rubato*) Sustain Pedal ad lib.

Michael Beiert

The image shows a musical score for the song "The Sound of Silence" by Simon & Garfunkel. The score is written in 4/4 time and includes a piano introduction, a vocal entry, and a section labeled "A tempo". The piano part features complex chords and triplets, while the vocal part is a simple melody. The score includes various musical notations such as notes, rests, and dynamic markings. The piano part starts with a "Piano" marking and a "rit." (ritardando) marking. The vocal part enters with a "rit." marking. The "A tempo" section is marked with "A tempo" and "Fade in electronic sound". The piano part continues with complex chords and triplets, while the vocal part continues with a simple melody. The score ends with a "Piano" marking and a "rit." marking.

The musical score for 'The Rose Tree' is presented in two systems. The first system consists of a vocal melody in the treble clef and a piano accompaniment in the bass clef. The vocal line begins with a whole note 'C' (middle C) and is followed by a series of eighth and sixteenth notes. The piano accompaniment features a steady eighth-note bass line and chords in the right hand. The second system continues the melody and accompaniment, with the vocal line ending on a whole note 'C'. The piano accompaniment includes a triplet of eighth notes in the right hand. The score is written in a single system with a key signature of one flat and a common time signature.

10

p

mf

p rit.

2

The musical score for 'The Rose Tree' is presented in two systems. The first system consists of two staves: a treble staff and a bass staff. The treble staff begins with a key signature of one sharp (F#) and a common time signature (C). The melody is written in a simple, folk-like style. The bass staff provides a harmonic accompaniment, featuring a prominent bass line. The second system continues the melody and accompaniment, with a key signature change to one flat (Bb) indicated by a flat symbol on the treble staff. The score is written in a clear, legible font, with notes and rests clearly defined. The overall structure is a simple, two-staff musical setting of the song.

20

A tempo

3

Musical score for measures 20-22. Measure 20 features a treble clef with a half note G4, a quarter note A4, and a quarter note B4, followed by a whole rest. The bass clef has a whole rest. Measure 21 is a whole rest in both staves. Measure 22 features a treble clef with a half note G4, a quarter note A4, and a quarter note B4, followed by a whole rest. The bass clef has a whole rest. A dashed line is present in the bass staff of measure 20.

Musical score for measures 23-25. Measure 23 features a treble clef with a half note G4, a quarter note A4, and a quarter note B4, followed by a whole rest. The bass clef has a whole rest. Measure 24 features a treble clef with a half note G4, a quarter note A4, and a quarter note B4, followed by a whole rest. The bass clef has a whole rest. Measure 25 features a treble clef with a half note G4, a quarter note A4, and a quarter note B4, followed by a whole rest. The bass clef has a whole rest. A crescendo hairpin is present in the bass staff of measure 24, starting from *du* and ending at *fu*.

A tempo

Musical score for measures 26-28. Measure 26 features a treble clef with a half note G4, a quarter note A4, and a quarter note B4, followed by a whole rest. The bass clef has a whole rest. Measure 27 features a treble clef with a half note G4, a quarter note A4, and a quarter note B4, followed by a whole rest. The bass clef has a whole rest. Measure 28 features a treble clef with a half note G4, a quarter note A4, and a quarter note B4, followed by a whole rest. The bass clef has a whole rest. A ritardando hairpin is present in the bass staff of measure 26, starting from *p* and ending at *rit.*.

Musical score for "The Rose Tree" in G major, 3/4 time. The score is written for voice and piano. The voice part is in the upper staff, and the piano accompaniment is in the lower staff. The key signature has one sharp (F#), and the time signature is 3/4. The score is divided into two systems. The first system contains measures 1 through 12, and the second system contains measures 13 through 24. The piano part features a prominent bass line with many triplets and a treble part with chords and single notes. The voice part consists of a single melodic line. The score ends with a double bar line and a repeat sign.

35

p

p

35

Musical score for measures 37-40. The score is written for two staves (treble and bass clef). Measure 37 features a piano (*p*) dynamic and a triplet of eighth notes in the treble staff. Measure 38 features a mezzo-piano (*mp*) dynamic and a half note in the treble staff. Measure 39 features a half note in the treble staff. Measure 40 features a piano (*p*) dynamic and a half note in the treble staff. The bass staff contains various rhythmic patterns, including eighth and sixteenth notes, and rests.

Musical score for measures 41-44. The score is written for two staves (treble and bass clef). Measure 41 features a piano (*p*) dynamic and a half note in the treble staff. Measure 42 features a mezzo-piano (*mp*) dynamic and a half note in the treble staff. Measure 43 features a piano (*p*) dynamic and a half note in the treble staff. Measure 44 features a piano (*p*) dynamic and a half note in the treble staff. The bass staff contains various rhythmic patterns, including eighth and sixteenth notes, and rests.

Musical score for measures 45-48. The score is written for two staves (treble and bass clef). Measure 45 features a mezzo-piano (*mp*) dynamic and a half note in the treble staff. Measure 46 features a mezzo-piano (*mp*) dynamic and a half note in the treble staff. Measure 47 features a mezzo-piano (*mp*) dynamic and a half note in the treble staff. Measure 48 features a mezzo-piano (*mp*) dynamic and a half note in the treble staff. The bass staff contains various rhythmic patterns, including eighth and sixteenth notes, and rests.

System 1 of the musical score, measures 48-50. The score is written for two staves (treble and bass clef). Measure 48 features a piano (*p*) dynamic and a triplet of eighth notes in the bass staff. Measure 49 features a piano (*p*) dynamic and a triplet of eighth notes in the bass staff. Measure 50 features a piano (*p*) dynamic and a triplet of eighth notes in the bass staff.

System 2 of the musical score, measures 48-50. The score is written for two staves (treble and bass clef). Measure 48 features a piano (*p*) dynamic and a triplet of eighth notes in the bass staff. Measure 49 features a piano (*p*) dynamic and a triplet of eighth notes in the bass staff. Measure 50 features a piano (*p*) dynamic and a triplet of eighth notes in the bass staff.

System 3 of the musical score, measures 48-50. The score is written for two staves (treble and bass clef). Measure 48 features a piano (*p*) dynamic and a triplet of eighth notes in the bass staff. Measure 49 features a piano (*p*) dynamic and a triplet of eighth notes in the bass staff. Measure 50 features a piano (*p*) dynamic and a triplet of eighth notes in the bass staff.

55

d

du

7

fu

du

60

A tempo

p

d

6

70

du

f

du

Measures 65-70. Treble and bass staves. Measure 65: Treble has a half note G#4, bass has a half note F#3. Measure 66: Treble has a half note A4, bass has a half note G3. Measure 67: Treble has a half note B4, bass has a half note A3. Measure 68: Treble has a half note C5, bass has a half note B3. Measure 69: Treble has a half note D5, bass has a half note C4. Measure 70: Treble has a half note E5, bass has a half note D3. Dynamics: *du* (65), *f* (68), *du* (70). Articulation: slurs over measures 65-68 and 69-70.

du

d

Measures 71-76. Treble and bass staves. Measure 71: Treble has a half note F#4, bass has a half note E3. Measure 72: Treble has a half note G4, bass has a half note F3. Measure 73: Treble has a half note A4, bass has a half note G3. Measure 74: Treble has a half note B4, bass has a half note A3. Measure 75: Treble has a half note C5, bass has a half note B3. Measure 76: Treble has a half note D5, bass has a half note C4. Dynamics: *du* (71), *d* (74). Articulation: slurs over measures 71-74 and 75-76.

du

f

8

65

Measures 77-82. Treble and bass staves. Measure 77: Treble has a half note E5, bass has a half note D3. Measure 78: Treble has a half note F5, bass has a half note E3. Measure 79: Treble has a half note G5, bass has a half note F3. Measure 80: Treble has a half note A5, bass has a half note G3. Measure 81: Treble has a half note B5, bass has a half note A3. Measure 82: Treble has a half note C6, bass has a half note B3. Dynamics: *du* (77), *f* (79). Articulation: slurs over measures 77-80 and 81-82.

9

A tempo

p rit.

mp

mf

75

3

3

f

fu

fu

du

3

3

80

d

d

du

d

3

3

10

p

Fade out electronic sound

85

dd

Abruptly, animated

♩ = ca. 55 (*rubato*) Sustain Pedal ad lib

Fline
for piano and electronic sound
2nd Movement

Michael Beiert

Measures 1-5 of the 2nd movement. The piano part (treble and bass clef) features a melodic line with triplets and a bass line with triplets. The electronic sound part (bass clef) features a melodic line with triplets and a bass line with triplets. The tempo is marked as ca. 55 (rubato) and the sustain pedal is used ad lib. The dynamic range is from piano (p) to mezzo-forte (mf).

Measures 6-10 of the 2nd movement. The piano part (treble and bass clef) features a melodic line with triplets and a bass line with triplets. The electronic sound part (bass clef) features a melodic line with triplets and a bass line with triplets. The tempo is marked as ca. 55 (rubato) and the sustain pedal is used ad lib. The dynamic range is from mezzo-forte (mf) to piano (p). The score includes a "Fade in electronic sound" instruction with a downward arrow.

Measures 11-15 of the 2nd movement. The piano part (treble and bass clef) features a melodic line with triplets and a bass line with triplets. The electronic sound part (bass clef) features a melodic line with triplets and a bass line with triplets. The tempo is marked as ca. 55 (rubato) and the sustain pedal is used ad lib. The dynamic range is from piano (p) to mezzo-forte (mf).

10

(tr)

duu

3

3

15

duu

3

3

fuu

3

duu

3

3

3

3

Musical score for measures 19 and 20. The score is written for two staves (treble and bass clef). Measure 19 features a triplet of eighth notes in the treble staff and a triplet of eighth notes in the bass staff. Measure 20 features a triplet of eighth notes in the treble staff and a triplet of eighth notes in the bass staff. The key signature has one sharp (F#).

Musical score for measures 21 and 22. The score is written for two staves (treble and bass clef). Measure 21 features a triplet of eighth notes in the treble staff and a triplet of eighth notes in the bass staff. Measure 22 features a triplet of eighth notes in the treble staff and a triplet of eighth notes in the bass staff. The key signature has one sharp (F#).

Musical score for measures 23 and 24. The score is written for two staves (treble and bass clef). Measure 23 features a triplet of eighth notes in the treble staff and a triplet of eighth notes in the bass staff. Measure 24 features a triplet of eighth notes in the treble staff and a triplet of eighth notes in the bass staff. The key signature has one sharp (F#).

First system of a musical score. It consists of two staves, Treble and Bass. The Treble staff begins with a piano (*p*) dynamic and features a triplet of eighth notes. The Bass staff has a forte (*f*) dynamic and contains a triplet of eighth notes. A slur connects the end of the Treble staff to the beginning of the Bass staff. The system concludes with a triplet of eighth notes in the Treble staff.

Second system of a musical score. The Treble staff starts with a mezzo-forte (*mf*) dynamic and includes a triplet of eighth notes. The Bass staff begins with a forte (*f*) dynamic and contains a triplet of eighth notes. A slur connects the end of the Treble staff to the beginning of the Bass staff. The system concludes with a triplet of eighth notes in the Treble staff.

Third system of a musical score. The Treble staff starts with a mezzo-forte (*mf*) dynamic and includes a triplet of eighth notes. The Bass staff begins with a forte (*f*) dynamic and contains a triplet of eighth notes. A slur connects the end of the Treble staff to the beginning of the Bass staff. The system concludes with a triplet of eighth notes in the Treble staff.

5

p

mf

mf

mf

mf

40

mf

mf

mf

mf

mf

45

mf

mf

mf

mf

mf

First system of a musical score. It consists of two staves. The upper staff has a treble clef and a key signature of one flat (B-flat). It begins with a dynamic marking of *du* and contains several triplet markings (groups of three notes beamed together). The lower staff has a bass clef and contains triplet markings. A slur connects the end of the upper staff to the beginning of the lower staff. The system ends with a triplet in the upper staff.

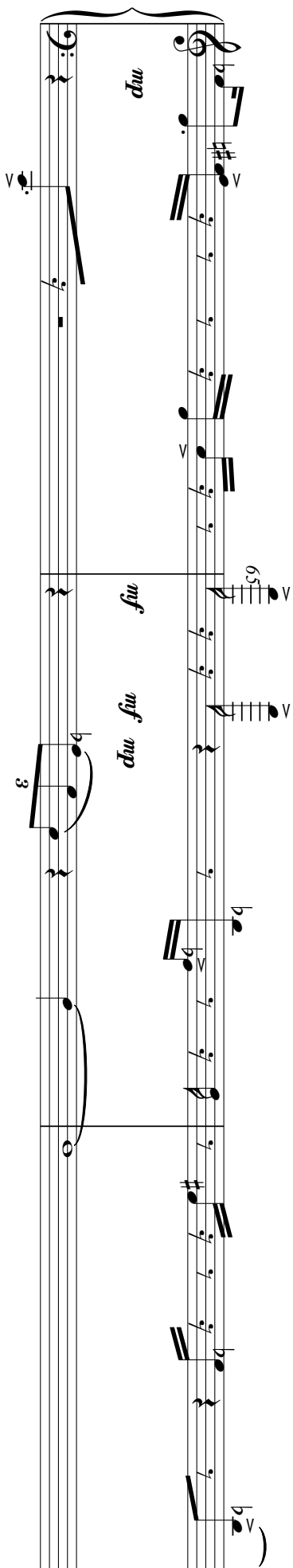
Second system of a musical score. It consists of two staves. The upper staff has a treble clef and a key signature of one flat (B-flat). It begins with a dynamic marking of *du* and contains several triplet markings. The lower staff has a bass clef and contains triplet markings. A slur connects the end of the upper staff to the beginning of the lower staff. The system ends with a triplet in the upper staff.

Third system of a musical score. It consists of two staves. The upper staff has a treble clef and a key signature of one flat (B-flat). It begins with a dynamic marking of *du* and contains several triplet markings. The lower staff has a bass clef and contains triplet markings. A slur connects the end of the upper staff to the beginning of the lower staff. The system ends with a triplet in the upper staff.

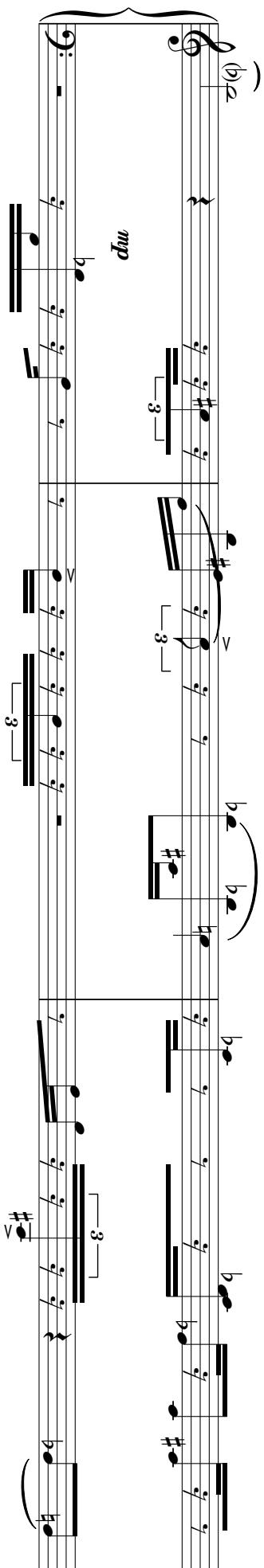
Musical score for measures 55-59. The system consists of two staves: a treble staff and a bass staff. Measure 55 features a treble staff with a half note G4 (marked *du*) and a bass staff with a half note F4. Measure 56 has a treble staff with a half note A4 and a bass staff with a half note G4. Measure 57 has a treble staff with a half note B4 and a bass staff with a half note A4. Measure 58 has a treble staff with a half note C5 and a bass staff with a half note B4. Measure 59 has a treble staff with a half note D5 and a bass staff with a half note C5. The piece concludes with a double bar line.

Musical score for measures 60-64. The system consists of two staves: a treble staff and a bass staff. Measure 60 features a treble staff with a half note E5 (marked *d*) and a bass staff with a half note D5. Measure 61 has a treble staff with a half note F5 and a bass staff with a half note E5. Measure 62 has a treble staff with a half note G5 and a bass staff with a half note F5. Measure 63 has a treble staff with a half note A5 and a bass staff with a half note G5. Measure 64 has a treble staff with a half note B5 and a bass staff with a half note A5. The piece concludes with a double bar line.

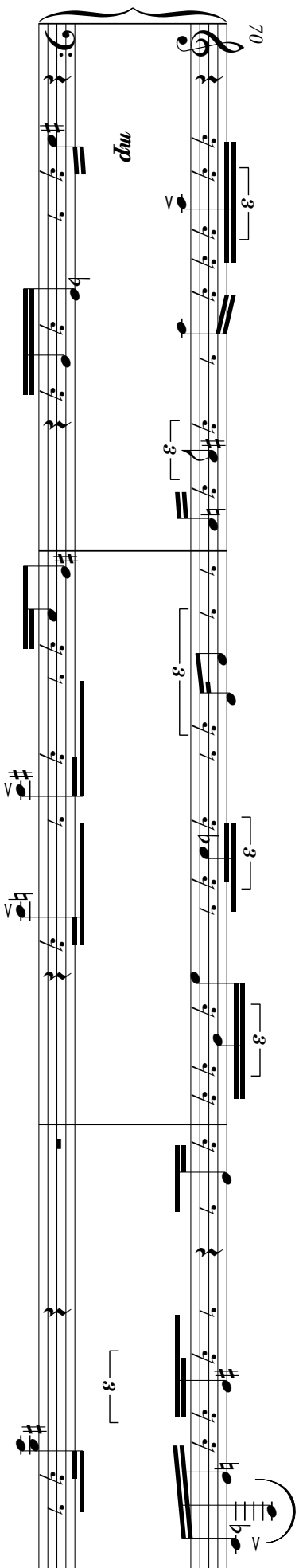
Musical score for measures 65-69. The system consists of two staves: a treble staff and a bass staff. Measure 65 features a treble staff with a half note C6 (marked *fu*) and a bass staff with a half note B5. Measure 66 has a treble staff with a half note D6 and a bass staff with a half note C6. Measure 67 has a treble staff with a half note E6 and a bass staff with a half note D6. Measure 68 has a treble staff with a half note F6 and a bass staff with a half note E6. Measure 69 has a treble staff with a half note G6 and a bass staff with a half note F6. The piece concludes with a double bar line.



Musical score system 1, measures 65-69. The system consists of two staves. The upper staff is in treble clef and contains a melodic line with various ornaments and slurs. The lower staff is in bass clef and contains a bass line with slurs and ornaments. Dynamic markings include *du* and *fu*. Measure numbers 65, 66, 67, 68, and 69 are indicated at the beginning of their respective measures.



Musical score system 2, measures 70-74. The system consists of two staves. The upper staff is in treble clef and contains a melodic line with various ornaments and slurs. The lower staff is in bass clef and contains a bass line with slurs and ornaments. Dynamic markings include *du*. Measure numbers 70, 71, 72, 73, and 74 are indicated at the beginning of their respective measures.

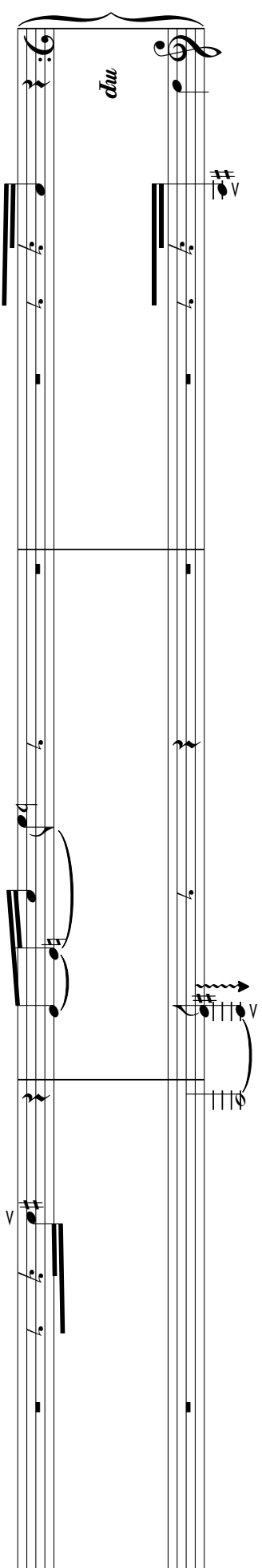


Musical score system 3, measures 75-79. The system consists of two staves. The upper staff is in treble clef and contains a melodic line with various ornaments and slurs. The lower staff is in bass clef and contains a bass line with slurs and ornaments. Dynamic markings include *du*. Measure numbers 75, 76, 77, 78, and 79 are indicated at the beginning of their respective measures.

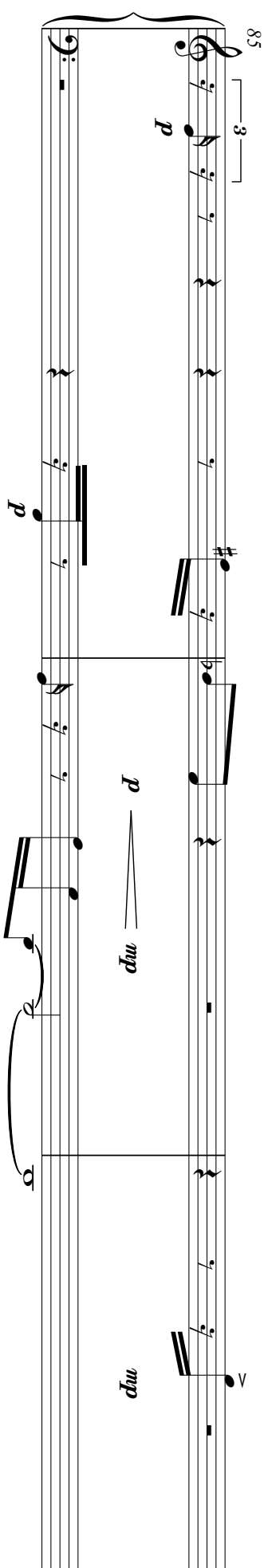
Musical score system 1 (measures 75-79). The system features a treble and bass staff. Measure 75 begins with a treble staff containing a half note G4 (F#4) and a bass staff with a half note F#3. Measure 76 has a treble staff with a half note G4 and a bass staff with a half note F#3. Measure 77 has a treble staff with a half note G4 and a bass staff with a half note F#3. Measure 78 has a treble staff with a half note G4 and a bass staff with a half note F#3. Measure 79 has a treble staff with a half note G4 and a bass staff with a half note F#3.

Musical score system 2 (measures 80-84). The system features a treble and bass staff. Measure 80 begins with a treble staff containing a half note G4 (F#4) and a bass staff with a half note F#3. Measure 81 has a treble staff with a half note G4 and a bass staff with a half note F#3. Measure 82 has a treble staff with a half note G4 and a bass staff with a half note F#3. Measure 83 has a treble staff with a half note G4 and a bass staff with a half note F#3. Measure 84 has a treble staff with a half note G4 and a bass staff with a half note F#3.

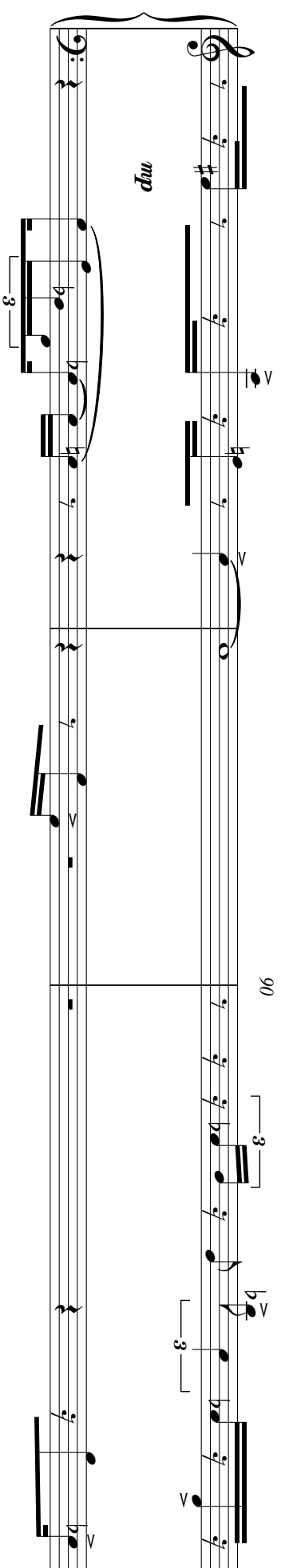
Musical score system 3 (measures 85-89). The system features a treble and bass staff. Measure 85 begins with a treble staff containing a half note G4 (F#4) and a bass staff with a half note F#3. Measure 86 has a treble staff with a half note G4 and a bass staff with a half note F#3. Measure 87 has a treble staff with a half note G4 and a bass staff with a half note F#3. Measure 88 has a treble staff with a half note G4 and a bass staff with a half note F#3. Measure 89 has a treble staff with a half note G4 and a bass staff with a half note F#3.



First system of a musical score. It consists of two staves, treble and bass. The treble staff begins with a key signature change to one sharp (F#) and contains several measures of music, including a triplet of eighth notes. The bass staff contains a few measures, including a triplet of eighth notes. The system concludes with a double bar line.



Second system of a musical score. It consists of two staves, treble and bass. The treble staff begins with a measure marked '85' and contains a triplet of eighth notes. The bass staff contains a few measures, including a triplet of eighth notes. The system concludes with a double bar line.



Third system of a musical score. It consists of two staves, treble and bass. The treble staff begins with a measure marked '90' and contains a triplet of eighth notes. The bass staff contains a few measures, including a triplet of eighth notes. The system concludes with a double bar line.

11

duu

f

duu

f

f

f

f

100

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

117

118

119

120

121

122

123

124

125

126

127

128

129

130

131

132

133

134

135

136

137

138

139

140

141

142

143

144

145

146

147

148

149

150

151

152

153

154

155

156

157

158

159

160

161

162

163

164

165

166

167

168

169

170

171

172

173

174

175

176

177

178

179

180

181

182

183

184

185

186

187

188

189

190

191

192

193

194

195

196

197

198

199

200

201

202

203

204

205

206

207

208

209

210

211

212

213

214

215

216

217

218

219

220

221

222

223

224

225

226

227

228

229

230

231

232

233

234

235

236

237

238

239

240

241

242

243

244

245

246

247

248

249

250

251

252

253

254

255

256

257

258

259

260

261

262

263

264

265

266

267

268

269

270

271

272

273

274

275

276

277

278

279

280

281

282

283

284

285

286

287

288

289

290

291

292

293

294

295

296

297

298

299

300

301

302

303

304

305

306

307

308

309

310

311

312

313

314

315

316

317

318

319

320

321

322

323

324

325

326

327

328

329

330

331

332

333

334

335

336

337

338

339

340

341

342

343

344

345

346

347

348

349

350

351

352

353

354

355

356

357

358

359

360

361

362

363

364

365

366

367

368

369

370

371

372

373

374

375

376

377

378

379

380

381

382

383

384

385

386

387

388

389

390

391

392

393

394

395

396

397

398

399

400

401

402

403

404

405

406

407

408

409

410

411

412

413

414

415

416

417

418

419

420

421

422

423

424

425

426

427

428

429

430

431

432

433

434

435

436

437

438

439

440

441

442

443

444

445

446

447

448

449

450

451

452

453

454

455

456

457

458

459

460

461

462

463

464

465

466

467

468

469

470

471

472

473

474

475

476

477

478

479

480

481

482

483

484

485

486

487

488

489

490

491

492

493

494

495

496

497

498

499

500

501

502

503

504

505

506

507

508

509

510

511

512

513

514

515

516

517

518

519

520

521

522

523

524

525

526

527

528

529

530

531

532

533

534

535

536

537

538

539

540

541

542

543

544

545

546

547

548

549

550

551

552

553

554

555

556

557

558

559

560

561

562

563

564

565

566

567

568

569

570

571

572

573

574

575

576

577

578

579

580

581

582

583

584

585

586

587

588

589

590

591

592

593

594

595

596

597

598

599

600

601

602

603

604

605

606

607

608

609

610

611

612

613

614

615

616

617

618

619

620

621

622

623

624

625

626

627

628

629

630

631

632

633

634

635

636

637

638

639

640

641

642

643

644

645

646

647

648

649

650

651

652

653

654

655

656

657

658

659

660

661

662

663

664

665

666

667

668

669

670

671

672

673

674

675

676

677

678

679

680

681

682

683

684

685

686

687

688

689

690

691

692

693

694

695

696

697

698

699

700

701

702

703

704

705

706

707

708

709

710

711

712

713

714

715

716

717

718

719

720

721

722

723

724

725

726

727

728

729

730

731

732

733

734

735

736

737

738

739

740

741

742

743

744

745

746

747

748

749

750

751

752

753

754

755

756

757

758

759

760

761

762

763

764

765

766

767

768

769

770

771

772

773

774

775

776

777

778

779

780

781

782

783

784

785

786

787

788

789

790

791

792

793

794

795

796

797

798

799

800

801

802

803

804

805

806

807

808

809

810

811

812

813

814

815

816

817

818

819

820

821

822

823

824

825

826

827

828

829

830

831

832

833

834

835

836

837

838

839

840

841

842

843

844

845

846

847

848

849

850

851

852

853

854

855

856

857

858

859

860

861

862

863

864

865

866

867

868

869

870

871

872

873

874

875

876

877

878

879

880

881

882

883

884

885

886

887

888

889

890

891

892

893

894

895

896

897

898

899

900

901

902

903

904

905

906

907

908

909

910

911

912

913

914

915

916

917

918

919

920

921

922

923

924

925

926

927

928

929

930

931

932

933

934

935

936

937

938

939

940

941

942

943

944

945

946

947

948

949

950

951

952

953

954

955

956

957

958

959

960

961

962

963

964

965

966

967

968

969

970

971

972

973

974

975

976

977

978

979

980

981

982

983

984

985

986

987

988

989

990

991

992

993

994

995

996

997

998

999

1000

1001

1002

1003

1004

1005

1006

1007

1008

1009

1010

1011

1012

1013

1014

1015

1016

1017

1018

1019

1020

1021

1022

1023

1024

1025

1026

1027

1028

1029

1030

1031

1032

1033

1034

1035

1036

1037

1038

1039

1040

1041

1042

1043

1044

1045

1046

1047

1048

1049

1050

1051

1052

1053

1054

1055

1056

1057

1058

1059

1060

1061

1062

1063

1064

1065

1066

1067

1068

1069

1070

1071

1072

1073

1074

1075

1076

1077

1078

1079

1080

1081

1082

1083

1084

1085

1086

1087

1088

1089

1090

1091

1092

1093

1094

1095

1096

1097

1098

1099

1100

1101

1102

1103

1104

1105

1106

1107

1108

1109

1110

1111

1112

1113

1114

1115

1116

1117

1118

1119

1120

1121

1122

1123

1124

1125

1126

1127

1128

1129

1130

1131

1132

1133

1134

1135

1136

1137

1138

1139

1140

1141

1142

1143

1144

1145

1146

1147

1148

1149

1150

1151

1152

1153

1154

1155

1156

1157

1158

1159

1160

1161

1162

1163

1164

1165

1166

1167

1168

1169

1170

1171

1172

1173

1174

1175

1176

1177

1178

1179

1180

1181

1182

1183

1184

1185

1186

1187

1188

1189

1190

1191

1192

1193

1194

1195

1196

1197

1198

1199

1200

1201

1202

1203

1204

1205

1206

1207

1208

1209

1210

1211

1212

1213

1214

1215

1216

1217

1218

1219

1220

1221

1222

1223

1224

1225

1226

1227

1228

1229

1230

1231

1232

1233

1234

1235

1236

1237

1238

1239

1240

1241

1242

1243

1244

1245

1246

1247

1248

1249

1250

1251

1252

1253

1254

1255

1256

1257

1258

1259

1260

1261

1262

1263

1264

1265

1266

1267

1268

1269

1270

1271

1272

1273

1274

1275

1276

1277

1278

1279

1280

1281

1282

1283

1284

1285

1286

1287

1288

1289

1290

1291

1292

1293

1294

1295

1296

1297

1298

1299

1300

1301

1302

1303

1304

1305

1306

1307

1308

1309

1310

1311

1312

1313

1314

1315

1316

1317

1318

1319

1320

1321

1322

1323

1324

1325

1326

1327

1328

1329

1330

1331

1332

1333

1334

1335

1336

1337

1338

1339

1340

1341

1342

1343

1344

1345

1346

1347

1348

1349

1350

1351

1352

1353

1354

1355

1356

1357

1358

1359

1360

1361

1362

1363

1364

1365

1366

1367

1368

1369

1370

1371

1372

1373

1374

1375

1376

1377

1378

1379

1380

1381

1382

1383

1384

1385

1386

1387

1388

1389

1390

1391

1392

1393

1394

1395

1396

1397

1398

1399

1400

1401

1402

1403

1404

1405

1406

1407

1408

1409

1410

1411

1412

1413

1414

1415

1416

1417

1418

1419

1420

1421

1422

1423

1424

1425

1426

1427

1428

1429

1430

1431

1432

1433

1434

1435

1436

1437

1438

1439

1440

1441

1442

1443

1444

1445

1446

1447

1448

1449

1450

1451

1452

1453

1454

1455

1456

1457

1458

1459

1460

1461

1462

1463

1464

1465

1466

1467

1468

1469

1470

1471

1472

1473

1474

1475

1476

1477

1478

1479

1480

1481

1482

1483

1484

1485

1486

1487

1488

1489

1490

1491

1492

1493

1494

1495

1496

1497

1498

1499

1500

1501

1502

1503

1504

1505

1506

1507

1508

1509

1510

1511

1512

1513

1514

1515

1516

1517

1518

1519

1520

1521

1522

1523

1524

1525

1526

1527

1528

1529

1530

1531

1532

1533

1534

1535

1536

1537

1538

1539

1540

1541

1542

1543

1544

1545

1546

1547

1548

1549

1550

1551

1552

1553

1554

1555

1556

1557

1558

1559

1560

1561

1562

1563

1564

1565

1566

1567

110

mf

mf

mf

13

mf

mf

mf

115

mf

mf

mf

120

119 120

121 122

125

123 124 125

15

d

duu

duu

15

130

duu

130

135

duu

d

fuu

135

First system of a musical score. The right hand (treble clef) features a triplet of eighth notes marked *du*. The left hand (bass clef) has a triplet of eighth notes marked *d*. The system is divided into two measures by a bar line.

Second system of a musical score. The right hand (treble clef) contains a triplet of eighth notes marked *du* and a triplet of eighth notes marked *du*. The left hand (bass clef) contains a triplet of eighth notes marked *du* and a triplet of eighth notes marked *du*. The system is divided into two measures by a bar line.

Third system of a musical score. The right hand (treble clef) features a triplet of eighth notes marked *fu* and a triplet of eighth notes marked *du*. The left hand (bass clef) has a triplet of eighth notes marked *du* and a triplet of eighth notes marked *du*. The system is divided into two measures by a bar line.

145

17

150

du

p

Fade out electronic sound

p

pp

Michael Beiert

Skein

for Bb clarinet and electronic sound

2012

Duration: ca. 6 ½ minutes

Instrumentation

Bb Clarinet
Electronic Sound (stereo)

System Requirements:

Apple MacBook, 2 high quality powered loudspeakers, soundcard (optional), Max 6.1.7 or higher, 'Skein' Max patch and audio files. The audio files should be copied to the Cycling '74 folder on the laptop.

The two loudspeakers should be placed on the floor on either side of the player and angled slightly outwards to enhance the stereo image. Additionally, rather than pointing the sound directly at the audience the speakers should be angled upwards by 45 degrees in order to have the sound bounce off reflective surfaces inside the performance space first, and therefore allowing for a more natural mix between instrument and electronic sound. The sound volume must be adjusted carefully not to overpower the live instrument.

Structure and Content of the Work

There are 26 fragments placed across two pages. The performer alternates between pages 1 and 2 playing one fragment at a time from either side. The player is free to choose fragments in any order (while maintaining an even alternation between the two pages), leaving gaps of varying lengths between them, and allowing the electronic accompaniment to come to the fore during moments of instrumental repose. The piece starts and ends with designated fragments.

The electronic part consists of transformed clarinet sounds. The player is encouraged to listen out for any sonic events in the electronic part, which may provide suitable 'jumping-off points' from which to continue with his/her own musical fragments.

The player starts and stops the electronic accompaniment by pressing the spacebar on the laptop.

Skein

for Bb clarinet and electronic sound

Score in C

Michael Beiert

With a sense of yearning

1

$\text{♩} = 60$

Start here.

musical notation: treble clef, whole note, dynamic *p*

musical notation: treble clef, half note, dynamic *mf*

musical notation: treble clef, half note, dynamic *mf*

musical notation: treble clef, half note, dynamic *mf*

musical notation: treble clef, half note, dynamic *mf*

musical notation: treble clef, half note, dynamic *mf*

musical notation: treble clef, half note, dynamic *mf*

musical notation: treble clef, half note, dynamic *mf*

Finish here.

musical notation: *mf* *ddd* *fuu* *Flz.*

musical notation: *ddd* *fuu* *Flz.*

musical notation: *ddd* *duu* *fuu* *Flz.*

musical notation: *ddd* *duu* *fuu* *Flz.*

musical notation: *mf* *ddd* *d* *dd* *fuu* *Flz.*

musical notation: *mf* *ddd* *d* *dd* *fuu* *Flz.*

musical notation: *mf* *ddd* *duu* *Flz.*

2

musical notation: *ddd* *fuu*

musical notation: *ddd* *fuu* *f* *d* *fuu*

musical notation: *f* *ddd*

musical notation: *d* *duu* *d* *fuu*

musical notation: *d* *duu* *d* *fuu*

musical notation: *ddd* *d* *ddd* *d* *dd* *fuu* *Flz.*

Michael Beiert

Together-Apart

for piano and electronic Sound

(2013)

Instrumentation

Piano
Electronic Sound (stereo)

System Requirements:

iPad 2 (or later), 2 high quality powered loudspeakers, 'Together-Apart' iOS App (available as a free download on the Apple App Store).

The two loudspeakers should be placed inside the piano facing upwards towards the open lid. The sound volume must be adjusted carefully not to overpower the piano performance. An impression should be given that the prepared sounds are emanating from the piano itself.

This is a study score, which may be used to get familiar with the musical material. The iPad app version of the score should be used during performance.

Playing Instructions (when using the 'Together-Apart' app on an iPad):

- Choose any treble and bass fragment by touching the little score images on the left and the right hand side. Selected fragments will be moved into the middle for a more conventional layout of the score and easier readability.
- Once a fragment has been selected a green tick will appear next to it to help keep track of which parts of the score have been performed.
- Accidentals work only for note they immediately precede.
- Treble and bass fragments may be played together (synchronous), or more independently, e.g. with varying tempo between hands, or pausing the left or right hand at any time. For example, a whole treble fragment may be played in the space of just one chord in the bass.
- The overall tempo may change at any time.
- Two or more fragments of one clef may be played in the space of just one fragment of the other clef.
- Just one hand (one fragment) may be played at a time.
- The sustain pedal may be used at the performer's own discretion, e.g. to prolong notes/chords at the end of a fragment, while preparing for the next one.
- The electronic sound accompaniment may be started at any time, e.g. before playing the first fragment, or any time after that.
- The Playback Density may be adjusted at any time during the performance in order to have sounds overlap at varying degrees, creating sonic textures with changing density. At a longer setting ("low") there is a greater chance of silence between sound events, which may be desirable during "slower" sections of the piece (as determined by the performer).
- Once all of the fragments have been played (green ticks all around), continue choosing new score combinations until all of the ticks have been cleared again, at which point the piece ends. Stop the electronic sound accompaniment and wait for the last sound event to fade out.

Together - Apart

for piano and electronic sound

Michael Beiert

Accidentals only count on a per-note basis and are NOT carried forward.

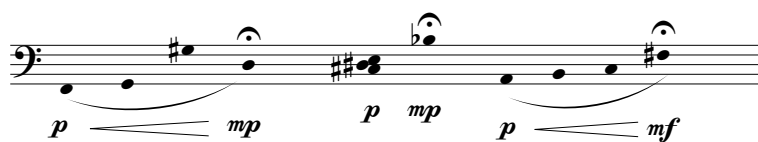
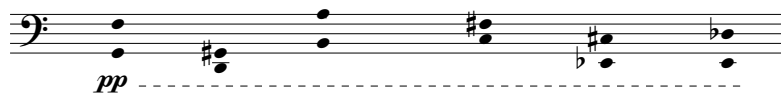
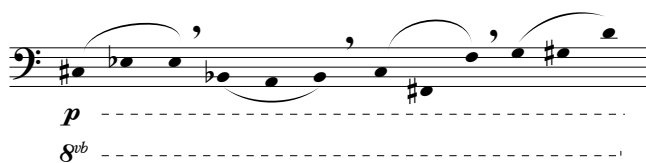
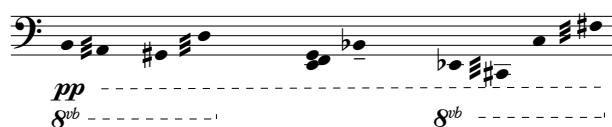
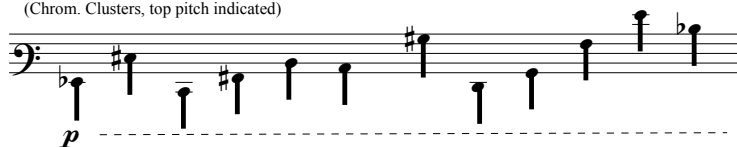
8

7

(Chrom. Clusters, starting pitch indicated)



(Chrom. Clusters, top pitch indicated)



Michael Beiert

Closer

for violin, cello and electronic sound

2014

Duration: 6 minutes

Instrumentation

Violin

Cello

Electronic Sound (stereo)

System Requirements:

Apple MacBook, 2 high quality powered loudspeakers, soundcard (optional), Max 6.1.7 or higher, 'Closer' Max patch and audio files. The audio files should be copied to the Cycling '74 folder on the laptop.

The speakers should be placed on the floor in front of the two players and angled slightly outwards to enhance the stereo image. Additionally, rather than pointing the sound directly at the audience, the speakers should be angled upwards by 45 degrees in order to have the sound bounce off reflective surfaces inside the performance space first, allowing for a more natural mix between instruments and electronic sound. The sound volume must be adjusted carefully not to overpower the live instruments. An impression should be given that the prepared sounds are emanating from the violin and the cello themselves.

Structure and Content of the Work

There are six sections in this piece (I – VI), all of which contain instrumental “activities” for each player. These can be performed in any order, as chosen by the player, with repeats of any of the activities being a possibility (in fact, performers are encouraged to do so). The length of gaps between individual activities is left to the discretion of each player. Note should be taken to play any given collection of activities *within the time/frame* given for each section, before moving on to the next set of activities of a *new section*. The start of each section is cued by the software application. If a player is “in the middle of an activity” when the application cues the start of the next section, he/she is encouraged to carry the current activity over into the new section, and finish at their own pace. This way, the change between sections will not sound too abruptly.

The MacBook should be facing the players at all times as it will provide information about both the current section (i.e. time remaining) and upcoming sections.

One of the players starts and stops the electronic part by pressing the spacebar on the laptop.

The electronic part consists of prepared sounds, which are organised and matched on a *per-section* basis. Within each section, though, the order of sound files played back, as well as the layering of multiple sounds, will change from performance to performance, resembling the Open Form aspect of the instrumental parts. The players are encouraged to listen out for any sonic events in the electronic part, which may provide suitable ‘jumping-off points’ for their own activities.

Closer

for violin, cello and electronic sound

Michael Beiert

[illegible][illegible]

1 minute

Vln.

Vc.

1 pizz. behind bridge

2 pizz. _____

3 arco *p*

pizz. *accel.*

15 times approx.

left hand pizz./irreg. repetitions

left hand pizz./irreg. repetitions

mp | *f* (Vary dynamics per note, and/or as crescendo/decrescendo)

mp | *f* (Vary dynamics per note, and/or as crescendo/decrescendo)

pizz. behind bridge

p *mf* *p* *mf* *p* *f*

p *mf* *p* *mf* *p* *f*

p *mf* *p* *mf* *p* *f*

2 1 minute

1 Irregular glissando around pitch (+/- half tone) 2 arco , pizz. , arco 3 Fast tremolo / irregular glissando around pitch (+/- quarter tone)

Vln. *p* | *mf* (Vary dynamics)

IV Irregular glissando around pitch (+/- whole tone) 2 arco *p* *mf* *f* *p* pizz. arco *p* | *f* (Vary dynamics)

Vc. *p* | *mf* (Vary dynamics) *pp* *mf* *du* *f* *p* < *mf* *p* | *f* (Vary dynamics)



1 minute

1 battuto (strike string with hair side of the bow) sim. 2 batt. batt. behind bridge 3 sim. →

Vln. *p* | *f* (Vary dynamics per strike, and/or as crescendo/decrescendo)

V battuto (strike string with hair side of the bow) sim. 2 batt. *f* *mf* *f* *du* < *f* *f* 3 *p* | *f* (Vary dynamics per strike, and/or as crescendo/decrescendo)

Vc. *p* | *f* (Vary dynamics per strike, and/or as crescendo/decrescendo) *f* *f* *f* *du* < *f* *fp* *p* | *f* (Vary dynamics per strike, and/or as crescendo/decrescendo)



1 minute

fast, irregular tremolo

Vln. *mp* | *ff* (Vary dynamics) fast, irregular tremolo

VI *mp* | *ff* (Vary dynamics)

Vc. *mp* | *ff* (Vary dynamics)

! slowly fade out to silence 10 9 8 7 6 5 4 3 2 1 ... 0

Michael Beiert

39

for ensemble and electronic sound

2014

Duration: 6 minutes

Instrumentation

Flute

Clarinet in Bb

Horn in F

Trumpet in C

Percussion (Suspended Cymbal, Snare Drum)

Violin I

Violin II

Viola

Cello

Double Bass

Electronic Sound (stereo)

System Requirements:

Apple MacBook, 2 high quality powered loudspeakers, soundcard (optional), Max 6.1.7 or higher, '39' Max patch and audio files. The audio files should be copied to the Cycling '74 folder on the laptop.

The speakers should be placed amongst the players with a suitable gap between them. The sound volume must be adjusted carefully not to overpower the live instruments. The impression should be given that the prepared sounds are emanating from the ensemble players themselves.

Structure and Content of the Work

Introduction (15 secs)

1 (30 secs)

2 (90 secs)

3 (30 secs)

Intermezzo (15 secs)

4 (90 secs)

5 (60 secs)

6 (30 secs)

There are eight sections of the work, two of which are purely electronic (*Introduction*, *Intermezzo*). The remaining six sections contain instrumental “activities” for each player, which can be performed in any order, as chosen by the player, with repeats of any of the activities being a possibility (in fact, performers are encouraged to do so). The length of gaps between individual activities is left to the discretion of the player. Note should be taken to play any given collection of activities *within the time frame* given for each section, before moving on to the next set of activities of a *new section*.

The conductor signals the start of each section. If *TACE*T is one of the activities (or, *Non-activity*, e.g. section 2) in an instrumental part, this should be followed first for the duration specified until a cue is given by the conductor to continue with the remaining activities of the current section. If a player is “in the middle of an activity” when the conductor cues the start of the next section, he/she is encouraged to “carry it over” into the new section, and finish at their own pace. This way, the change between sections will not sound too abrupt.

The conductor should have the MacBook facing him/her at all times as this will help with the preparation of cues for each section. The screen will provide information about both the current section (i.e. time remaining) and upcoming sections. As a section is about to end (with maybe 10 seconds remaining) the conductor should cue with one hand the upcoming section (i.e. signal the number), with the other hand cueing the actual beginning (e.g. downward motion). A special arrangement must be made for the *Intermezzo*; once the preceding section (i.e. 3) has finished the conductor gives a suitable signal to the players (e.g. both arms up), at which point the performers may finish their current activity and then fall silent. The conductor should prepare the next section (4) as usual. The conductor signals the end of the piece, allowing the players to gently fade out.

The electronic part consists of prepared sounds, which are organised and matched on a *per-section* basis. Within each section, though, the order of sound files played back, as well as the layering of multiple sounds, will change from performance to performance, resembling the Open Form aspect of the instrumental parts. The players are encouraged to listen out for any sonic events in the electronic part, which may provide suitable ‘jumping-off points’ for their own activities. The conductor starts and stops the electronic part by pressing the spacebar on the laptop.

39

Michael Beiert

[illegible]

II

Fl.

//

Cl.

//

Hr.

//

C Tpt.

//

Perc.

(S. Cym.) —

1 Bow Short, sharp attacks. (*mf*)

2 Bow

3 Bow , , ,

Vln. 1

mp (*mf*)

1 Irreg. tremolo behind bridge. Vary speed.

2 *mp* (*mf*) senza vibrato

3 Irreg. tremolo behind bridge. Vary speed.

Vln. 2

mp

1 Irreg. tremolo behind bridge. Vary speed.

2 *mp* (*mf*) senza vibrato

3 *mp* (*mf*) senza vibrato

Vla.

//

30 seconds Tacet

...after silence, commence with...

mp *mf* *mp* *mf* *p*

Irreg. tremolo behind bridge. Vary speed.

Vc.

1 Irreg. tremolo behind bridge. Vary speed.

2 *pp* senza vibrato

3 Irreg. tremolo behind bridge. Vary speed.

Cb.

pp

1 *pp* senza vibrato

2 *pp* Irreg. tremolo behind bridge. Vary speed.

3 *pp* senza vibrato

III

Fl.

//

Cl.

//

Hn.

1 (♯) *accel.* *p* *f* 2 *Flz.* *p* *mf* 3 *p* *mf*

CTpt.

1 *Flz.* *p* *mf* 2 *p* *accel.* *f* 3 *Flz.* *p* *mf*

Perc.

1 Snare *p / mf* Snare roll. Vary speed & intensity. 2 *p* *mf* 3 *p* *mp* *mf* *mf* *f* *mf* *mp* *p* *mf* *mp* *mf*

Vln. 1

//

Vln. 2

//

Vla.

//

Vc.

senza vibrato Gradually increase bow pressure until tone has changed into scratching noise.

pp *mf*

Cb.

pp *mf*

V

60 seconds

5

Fl.

Key slaps

sim.

p/f (Vary dynamics, e.g. w/ every key slap, or cresc./decresc.)

Cl.

Key slaps

sim.

p/f (Vary dynamics, e.g. w/ every key slap, or cresc./decresc.)

Hn.

Valve clicks

sim.

p/f (Vary dynamics, e.g. w/ every click, or cresc./decresc.)

CTpt.

Valve clicks

sim.

p/f (Vary dynamics, e.g. w/ every click, or cresc./decresc.)

Perc.

//

Vln. 1

1

8^{va}

2

8^{va}

3

8^{va}

4

8^{va}

p

mf

p

mf

p

p

mp

Vln. 2

1

8^{va}

2

8^{va}

3

8^{va}

p

p

mp

p

mf

p

p

p

Vla.

1

p

2

accel.

3

p

p

mp

p

p

p

p

p

p

p

p

p

p

p

p

p

p

Play pitches in any order, also, repeat single pitches ad lib.

Vc.

pizz.

sim.

pp/ mp (Vary dynamics, e.g. w/ every pizz., or cresc./decresc.)

pizz.

sim.

Play pitches in any order, also, repeat single pitches ad lib.

Cb.

pizz.

sim.

pp/ mp (Vary dynamics, e.g. w/ every pizz., or cresc./decresc.)

Fl.

p

senza vibrato

///

Cl.

p

senza vibrato

#

///

Hn.

p

senza vibrato

///

C Tpt.

p

senza vibrato

///

Perc.

p

(S. Cym.) — *—*
Bow *□*

Vln. 1

p

senza vibrato

b

Vln. 2

p

senza vibrato

Vla.

p

senza vibrato

#

Vc.

p

senza vibrato

b

Cb.

p

senza vibrato

Michael Beiert

Hope Street

for four instruments and soundscape

2014

Duration: 8 minutes

Instrumentation

Four instruments, monophonic and/or polyphonic

Soundscape (stereo sound)

System Requirements:

Apple MacBook, 2 high quality powered loudspeakers, soundcard (optional), Max 6.1.7 or higher, 'Hope Street' Max patch and audio file. The audio file should be loaded into the buffer ahead of the performance.

Place the speakers amongst the players with a suitable gap between them. Adjust the volume so that the electronic sound provides a subtle accompaniment to the instrumental performance.

Performance Notes

- Read the score from left to right.
- All four instruments have their own stave. Each stave is divided into three equal bands, or musical registers: low, medium and high. This will change proportionally for each instrument. Pitches are left unspecified, and players will individually interpret the size of intervals.
- Perform the three pages of the composition in ascending order 1-2-3.
- Play each page within the time frame given. If any of the performers reach the end of the page with considerable time to spare, jump back to the beginning of your stave and start again.
- For pages 1 and 2 each player remains on their own stave; on page 3, vertical lines connect musical events between all four staves. These can be used as 'corridors' onto any of the other staves. Continue playing the material of the newly selected stave until the end of the page, or, alternatively, until a new "corridor" opens up an opportunity to switch staves again.
- Graphical elements, or musical events, can be interpreted in various ways, here are some suggestions:
 1. Note heads indicate pitch (as opposed to noise), any other graphical elements may be interpreted as pitch or noise*
 2. The varying thickness of events indicates changing dynamics.
 3. Continuous (horizontal) lines are played as sustained notes/noises, with ascending/descending lines denoting pitches as going up/going down
 4. Dotted lines (horizontal) are played as note/noise repetitions, with horizontal lines implying repetition of the same note/noise, and ascending/descending lines denoting pitches as going up/going down.
 5. Wavy lines are played as notes/noises with vibrato or trills.
 6. Vertical lines are played as notes/noises with sharp attacks. Dotted vertical lines are played as very short arpeggios.
 7. Bent lines (or brackets) are played as pitch bend
 8. Where an instrument is polyphonic, events that coincide vertically may be played as chords/simultaneous noises. With monophonic instruments, one could "oscillate" (jump forth and back) between simultaneous events, or simply chose one event and discard any of the other simultaneousities. (Those events discarded could be played upon repeating the same stave, if time allows.)

*(to be produced on any part of the instrument)

Hope Street
for four instruments and soundscape

Michael Beiert

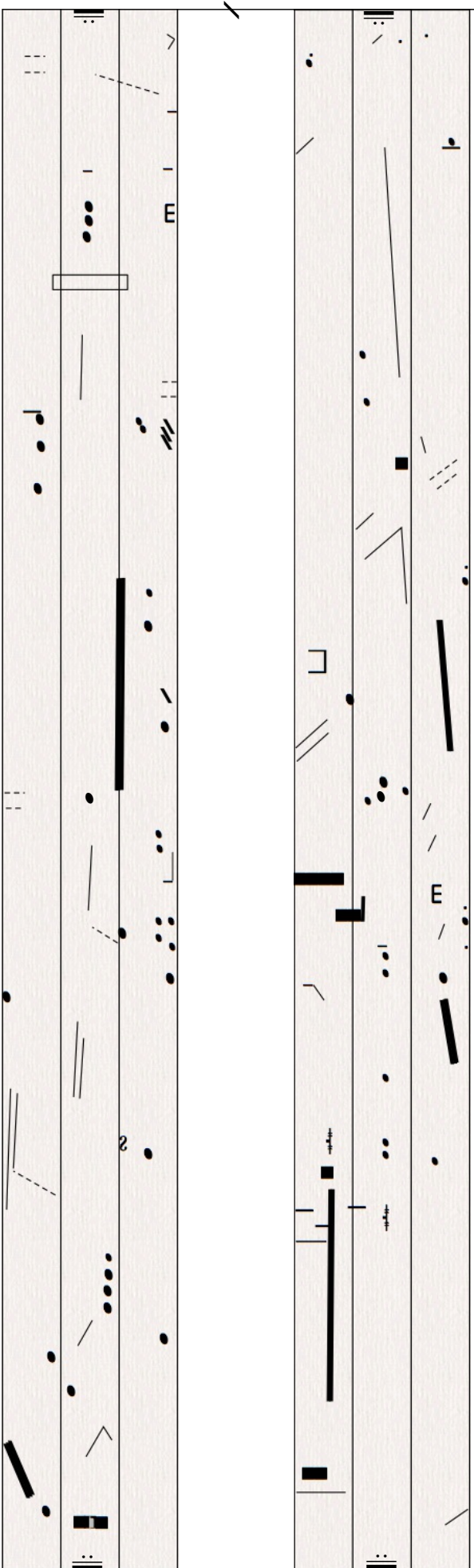
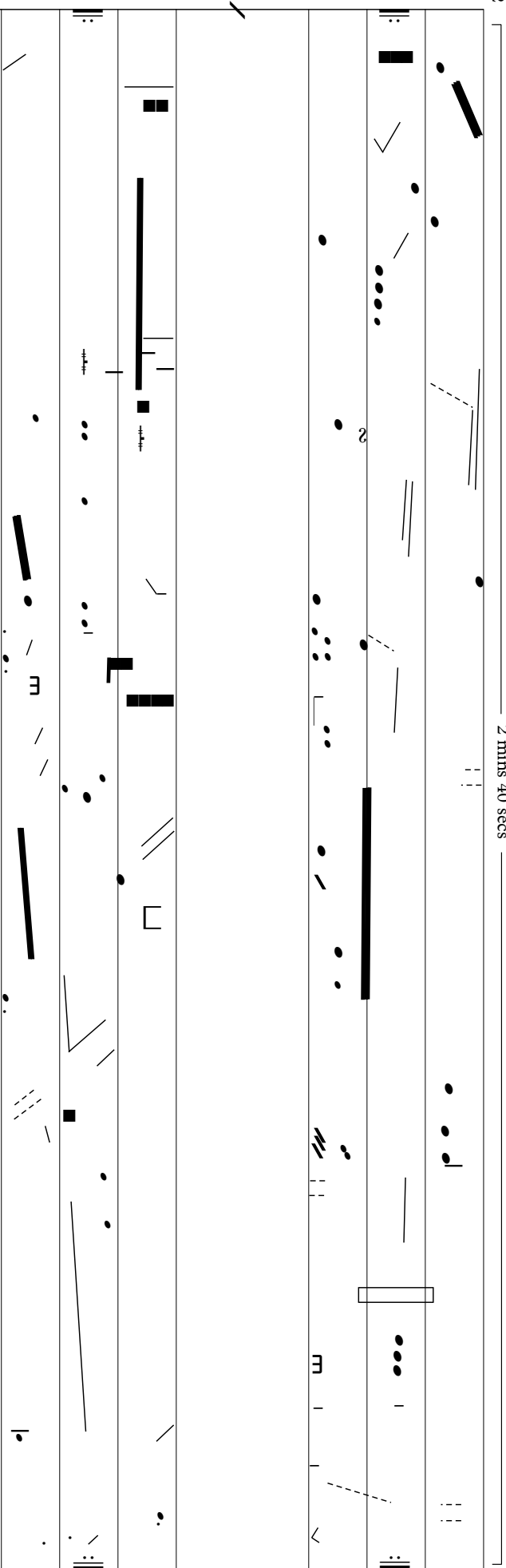
2 mins 40 secs

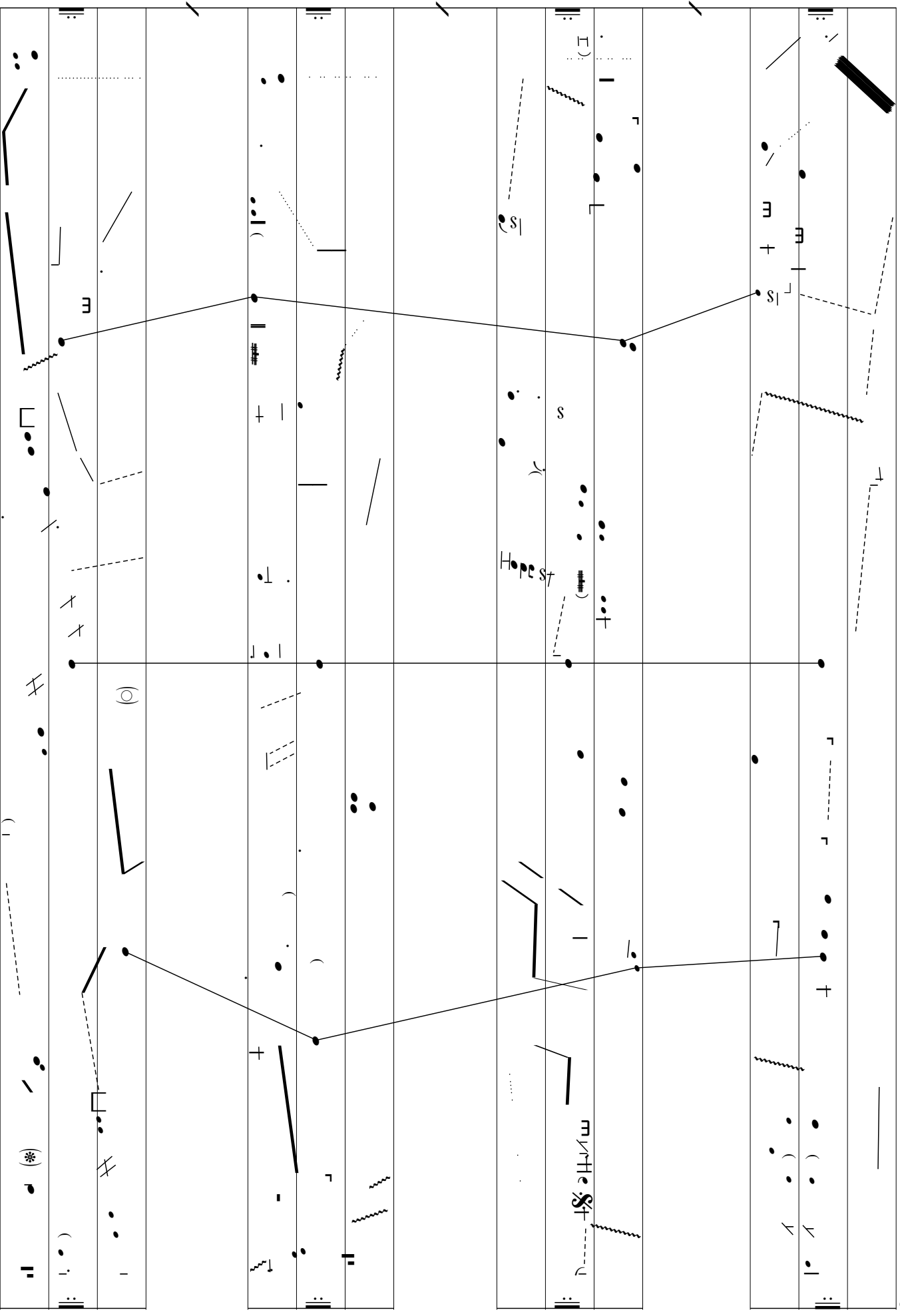
The first system of the musical score consists of four staves. The top staff features a series of horizontal lines and dots, with a wavy line at the end. The second staff contains a sequence of dots and vertical lines. The third staff shows a series of dots and horizontal lines. The bottom staff includes a series of dots and horizontal lines, with a wavy line at the end.

The second system of the musical score consists of four staves. The top staff features a series of horizontal lines and dots, with a wavy line at the end. The second staff contains a sequence of dots and vertical lines. The third staff shows a series of dots and horizontal lines. The bottom staff includes a series of dots and horizontal lines, with a wavy line at the end.

The third system of the musical score consists of four staves. The top staff features a series of horizontal lines and dots, with a wavy line at the end. The second staff contains a sequence of dots and vertical lines. The third staff shows a series of dots and horizontal lines. The bottom staff includes a series of dots and horizontal lines, with a wavy line at the end.

The fourth system of the musical score consists of four staves. The top staff features a series of horizontal lines and dots, with a wavy line at the end. The second staff contains a sequence of dots and vertical lines. The third staff shows a series of dots and horizontal lines. The bottom staff includes a series of dots and horizontal lines, with a wavy line at the end.





Michael Beiert

I Can Feel His Mouth

for female voice, piano and electronic sound

2015

Duration: ca. 8 minutes

Instrumentation

Female Voice
Piano
Electronic Sound (stereo)

System Requirements:

Apple MacBook, 2 high quality powered loudspeakers, soundcard (optional), Max 6.1.7 or higher, 'I Can Feel His Mouth' Max patch and audio files. The audio files should be copied to the Cycling '74 folder on the laptop.

The two loudspeakers should be placed inside the piano facing upwards towards the open lid. The sound volume must be adjusted carefully not to overpower the voice and piano performance. An impression should be given that the prepared sounds are emanating from the piano itself.

Structure and Content of the Work

There are eight sections in this work, each ca. one minute long. Within these sections, both the singer and the pianist are free to interpret the proportional notation with their own sense of inner rhythm. To that extent, there is no strict synchronisation between the two parts, however, both performers are encouraged to respond musically to each other, and also to the electronic accompaniment. Indeed, both players may want to identify (ahead of a performance) possible points of musical coalescence for the instrumental parts within the various sections. Vertical dotted lines are used at the beginning of each section, as well as some other places throughout the piece, to mark points of common departure, and to generally re-synchronise the two instrumental parts with the aim to produce an overall sense of joint movement and musical progression, despite the inner elasticity.

Commas in the voice part denote the end of a vocal phrase and indicate a short pause. Phrases should be sung *legato* where possible. For the short fragment labelled "Sprechgesang" the singer should adhere to the notated pitches only initially, after which the voice changes to speech timbre.

The electronic accompaniment consists of transformed piano sounds, which are played back indiscriminately for the duration of the piece. The pianist, in particular, is encouraged to "latch on" to these electronic events and help create a connection between prepared and live piano sounds. The pianist starts and stops the electronic accompaniment as indicated in the score (CUE 1, CUE 2).

Words taken from James Joyce's *Ulysses*.

yes because he never did a thing like that before
as ask to get his breakfast in bed
men get a bit like that at his age
especially getting on to forty
he is now so as to wheedle any money she can out of him
no fool like an old fool

the smell of those painted women
when I found the long hair on his coat
without that one when I went into the kitchen
pretending he was drinking water

yes Boylan talking about the shape of my foot
he noticed at once even before he was introduced

when he commenced kissing me on the choir stairs
after I sang Gounods Ave Maria
what are we waiting for
oh my heart kiss me straight on the brow

yes I can feel his mouth Oh Lord
the ignoramus that doesn't know poetry from a cabbage
his mouth oh Lord

pulling off his shoes and trousers there on the chair before me
so barefaced and without permission
I was forgetting

yes the sun shines for you he said
yes sixteen years ago after that long kiss
I hear lost my breath
yes that was why I liked him

and then I asked him with my eyes to ask again
yes I put my arms around him and drew him down to me
yes I said yes
I will

I Can Feel His Mouth

for female voice, piano and electronic sound
words taken from James Joyce's *Ulysses*

Somewhere between dream and wakefulness...

ca. 1 minute

Michael Beiert

I

Voice

(whispered) (slowly) (spoken) (spoken, with attitude!)

yes ...ssssss be- cause he ne- ver did a thing like that be- fore as ask to get his break- fast in bed

men get a bit like that at his age especially getting on to forty he is now so as to wheedle any money she can out of him no fool like an old fool

Piano

pp *p* *mp* *tacet*

CUE 1
start electronic sound

sust. _____

ca. 1 minute

II

Voice

(slowly) (spoken, angered!)

the smell of those pain- ted wo- men when I found the long hair on his coat

without that one when I went into the kitchen pretending he was drinking water

Pno.

pp *p* *mp* *pp* (irr. repeat) *pp* (no pedal)

sust. _____

ca. 1 minute

III

Voice (half whispered) (slowly)

yes ...ssssss Boy- lan tal- king a- bout the shape of my foot he no- ticed at once e- ven be- fore

Pno. *p*

sust. *mp*

(spoken, slightly amused)

he was in- tro- duced

(tacet)

ca. 1 minute



IV

Voice (slowly)

when he co- menced kis- sing me on the choi- r stains af- ter I sang Gou- nods A- ve Ma- ri- a what are we wai- ting for Oh my heart kiss me straight on the brow

Pno. *p*

sust. *mp*

(spoken)

(Sprechgesang)

(slowly)

ca. 1 minute

ca. 1 minute

Voice (slowly) , (spoken)

mp yes! *p* I can feel his mouth Oh Lord *mf* the ig- no- ra- mus that doe- sn't know po- e- try from a cab- bage *mf* his mouth Oh Lord *mf*

Pno. *mp* *p* *8^{va}* *p* *mf*

sust. _____

V

VI

ca. 1 minute

Voice (slowly)

p pul- ling off his shoes and trou- sers there on the chair be- fore me so bare- faced and with- out per- mis- sion I was for- get- ting

Pno. *p* *tr* accel. *pp*

sust. _____

VI



The musical score is divided into three main sections, each with a different tempo or character:

- (slowly)**: The first section, marked with a large 'V' at the beginning and end. It features a vocal line with lyrics: "and then I asked him with my eyes to ask a- gain yes!! I put my arms a-round him and drew him down to me yes! I said yes! I will". The piano accompaniment is marked *p* (piano). A section labeled "VIII" is indicated by a large 'V' at the beginning and end.
- (spoken)**: The second section, marked with a large 'V' at the beginning and end. It features a vocal line with lyrics: "yes!! I put my arms a-round him and drew him down to me yes! I said yes! I will". The piano accompaniment is marked *mf* (mezzo-forte).
- (spoken)**: The third section, marked with a large 'V' at the beginning and end. It features a vocal line with lyrics: "yes!! I put my arms a-round him and drew him down to me yes! I said yes! I will". The piano accompaniment is marked *p* (piano).

The score also includes a section labeled "Pno." (Piano) and a section labeled "CUE 2" (stop electronic sound). The tempo is marked "ca. 1 minute".

Michael Beiert

Hidden Within

for cello and electronic sound

2015

Instrumentation

Cello
Electronic Sound (stereo)

System Requirements:

Apple MacBook, 2 high quality powered loudspeakers, soundcard (optional), Max 6.1.7 or higher, 'Hidden Within' Max patch and audio files. The audio files should be copied to the Cycling '74 folder on the laptop.

The two loudspeakers should be placed on the floor on either side of the player and angled slightly outwards to enhance the stereo image. Additionally, rather than pointing the sound directly at the audience the speakers should be angled upwards by 45 degrees in order to have the sound bounce off reflective surfaces inside the performance space first, and therefore allowing for a more natural mix between instrument and electronic sound. The sound volume must be adjusted carefully not to overpower the live instrument. An impression should be given that the prepared sounds are emanating from the cello itself.

Structure and Content of the Work

There are 29 musical fragments arranged on a single page. 15 of those are scored fairly traditionally, with information about pitch, duration and dynamics, while the remaining 14 fragments are a collection of connected 'blobs' (blob sequence). These are altogether more open to interpretation, and the player is encouraged to give these a much more 'noisy' ('unmusical') treatment, where pitch may be more indeterminate, and where extended playing techniques, such as playing behind the bridge and tapping the instrument, will produce a more choppy texture. The blobs themselves provide some graphical detail, which will help the player with their interpretation. For example, blobs may be read like this: thickness = loudness, length = duration, curves = pitch deviation. These details are to be read proportionally from one blob to the next within each of the 14 sequences available. Any succeeding blob within a sequence, which is positioned (on the page) either higher or lower compared to the previous one should be performed respectively higher or lower on the fingerboard.

The player may start the piece with any fragment on the page and move to any fragment thereafter, until all fragments have been performed, at which point the piece ends. The player's selection may follow a fairly regular pattern of alternating 'pitched' and 'noisy' fragments, or, instead, he/she may decide to group together various fragments of one type, before moving on to a small selection of fragments belonging to the other type. Some of the fragments are entwined with others. This is to convey the tight integration between the musical notes and the electronic sound used. However, these should still be performed as separate musical phrases.

Accidentals affect only notes they are immediately preceding.

The electronic accompaniment consists of string instrument sounds. The cello player is encouraged to listen out for any sonic events in the electronic part, which may provide suitable 'jumping-off points' from which to continue with his/her own musical fragments. He/She may decide to imitate sounds heard in the electronic part, or, conversely, play in a way, which presents a contrast to the prepared sounds.

The player starts and stops the electronic accompaniment by pressing the spacebar on the laptop.

Hidden Within

for cello and electronic sound

Michael Beiert

The musical score is presented in four systems. Each system consists of a cello staff (top) and an electronic sound staff (bottom). The cello staff uses a bass clef and a key signature of one sharp (F#). The electronic sound staff uses a treble clef and a key signature of one sharp (F#). The score includes various musical notations such as notes, rests, dynamics (p, mp, mf, pp), articulation (pizz., arco, tr), and performance instructions (tremolo). The electronic sound part features a series of wavy lines representing sound waves, which are connected to the musical notation by dotted lines, indicating the relationship between the sound and the notation.

System 1: Cello staff begins with a whole note F#4, followed by a half note G#4, and a whole note A4. The electronic sound staff begins with a whole note F#4, followed by a half note G#4, and a whole note A4. The electronic sound part features a series of wavy lines representing sound waves, which are connected to the musical notation by dotted lines, indicating the relationship between the sound and the notation.

System 2: Cello staff begins with a whole note B4, followed by a half note C5, and a whole note D5. The electronic sound staff begins with a whole note B4, followed by a half note C5, and a whole note D5. The electronic sound part features a series of wavy lines representing sound waves, which are connected to the musical notation by dotted lines, indicating the relationship between the sound and the notation.

System 3: Cello staff begins with a whole note E5, followed by a half note F#5, and a whole note G5. The electronic sound staff begins with a whole note E5, followed by a half note F#5, and a whole note G5. The electronic sound part features a series of wavy lines representing sound waves, which are connected to the musical notation by dotted lines, indicating the relationship between the sound and the notation.

System 4: Cello staff begins with a whole note A5, followed by a half note B5, and a whole note C6. The electronic sound staff begins with a whole note A5, followed by a half note B5, and a whole note C6. The electronic sound part features a series of wavy lines representing sound waves, which are connected to the musical notation by dotted lines, indicating the relationship between the sound and the notation.

Volume II

Composition Commentary

In loving memory of my late mother Ursula Elisabeth Demmer (1952-2012).

We miss you every day.

Table of Contents

Introduction	1
1. <i>Distant Cousins</i> – electronic music composition	17
1.1. Breaking the mould, defying the medium	
1.2. Genesis of a new work	
2. <i>Flinx</i> – for piano and electronic sound	23
2.1. Open Form on a different timescale	
2.2. Technical implementation	
2.3. Composing the score	
3. <i>Skein</i> – for clarinet and electronic sound, <i>Together-Apart</i> – for piano and electronic sound	29
3.1. Opening up the score	
3.1.1. <i>Skein</i>	
3.1.2. <i>Together-Apart</i>	
3.2. The electronic accompaniment	
3.3. The ease of iOS	
3.4. Performer Contribution	
4. <i>Closer</i> – for violin, cello and electronic sound, 39 – for ensemble and electronic sound	47
4.1. A particular type of Open Form	
4.2. Maintaining a ‘macro’ view	
4.3. Devising a cueing system	

5. <i>Hope Street</i> – for four instruments and soundscape, <i>I Can Feel His Mouth</i> – for female voice, piano and electronic sound, <i>Hidden Within</i> – for cello and electronic sound	54
5.1. Beyond the “Open”	
5.2. Time to readjust	
5.3. Ongoing investigations	
5.4. Performer Contribution	
6. Conclusion	72
References	77
Technical Appendix	81
Resources Appendix (DVD/SD Card)	94

Abstract

The following chapters describe compositional methods applied to the compositions of the portfolio (Volume I), which consists of eight works for instruments and electronic sound, as well as one purely electronic piece.

The main concern in all these works is aspects of open form and, to a lesser extent, indeterminacy during performance. I will highlight the research I have undertaken in preparation for each of the compositions, show how all of these pieces are progressively linked by my evolving interest in open form, and place them in context with works by other composers, past and present, who have employed similar, or different, experimental procedures.

Volume II, the composition commentary, includes a technical appendix, explaining the different software processes for the individual works, and a recourse appendix containing recordings of all of the nine compositions, as well as all of the Max patches, Max for Live devices and sound files I have programmed and created for the electronic parts of the pieces.

Acknowledgements

I wish to thank various people for their contribution to this project: Matthew Fairclough, my supervisor, for his patient guidance, encouragement and useful critique of this research work – his experience and technical knowledge has been invaluable; the Music Department at the University of Liverpool for their continued support; all the performers who were involved in the rehearsals, performances and recordings of my compositions, and whose input was crucial for the development of my performance concepts; Dr. John Dack for personally sharing his own research on Henri Pousseur's Open Form works; Ben Blackmore at Red Ninja Company in Liverpool for his practical help and suggestions during the development of the iOS app for my composition 'Together-Apart'; James Wishart, Robin Hartwell and Dr. Ian Percy for their lasting motivation and advice given to me when I first entered the world of contemporary music composition; Dr. Eduardo Coutinho and Nick Wong for countless hours of stimulating discussions and important moral support.

Special recognition goes out to my family: my parents Wilfried Beiert and Ursula Elisabeth Demmer for their encouragement and support at the very beginning of my musical journey; my two beautiful children, Amelie and Felix, for being the biggest source of joy and inspiration in my life – I love you with all my heart; and, finally, my wonderful wife Carolyn without whose enduring optimism, reassurance and love I would not have been able to complete this work – love you, für immer.

Introduction

I have felt that the conditions of spontaneity and mobility of elements which I have been working with create a more urgent and intense “communication” throughout the entire process, from composing to the final realization of a work. I prefer that each “final form”, which each performance necessarily produces, be a collaborative adventure, and that the work and its conditions of human involvement remain a “living” potential of engagement.¹

The short paragraph above forms part of the *Directions for Performance*, which appears in several of Earl Brown’s open form scores from the early 1960s. I have become very interested in composing open form works over the last five years, and, in particular, I have held a fascination with Brown’s compositions of the 1950s and 1960s. The reason I connect deeply with this sentiment of his, as captured so eloquently in the above quote, is because I spent most of my teenage years playing in various rock bands gaining very similar experiences with regards to an active and collaborative involvement of the musicians when working together on a song arrangement, and even agreeing to keep the performance ‘outcome’ flexible. Having begun to compose contemporary works as an Undergraduate, the open form concept has finally allowed me to reconnect with my original musical sensibilities, and it has provided me with a way to incorporate the collaborative aspect of music making into my own works.

¹ Earle Brown, 1962

Backgrounds

Open form in music is not a new concept, and while it generated a lot of interest amongst composers, especially in the 1950s and 1960s, it can be found in earlier music as well. A noteworthy example is the ‘Musikalisches Würfelspiel’ (musical dice game), a style of composition, popular in eighteenth century Western Europe, which relied on the rolling of dice (and generating of random numbers) to produce a variable sequence of pre-composed score parts. It was not until the middle of the twentieth century, however, inspired by John Cage’s chance procedures and his move towards the exploration of sound for its own sake, liberated from preconceived structures, in which sounds merely function as agents articulating the more abstract notions of formal relationships, that composers were beginning to experiment seriously with concepts of open form and other aspects of indeterminacy. Earle Brown’s *Twenty-Five Pages* (1953), Morton Feldman’s *Intermission 6* (1953), and Karlheinz Stockhausen’s *Klavierstück XI* (1956) are but three examples of an emerging repertoire of works, which were re-evaluating the role of the performer, in particular. With the above pieces, the composers were still occupied with producing the content of the works, the musical material, as determined through fixed pitches, dynamic markings, durations (although both Brown and Feldman were already introducing considerable freedom of interpretation), phrasing and instrumentation. In these compositions,

“the function of the performer is [...] that of giving form, providing, that is to say, the morphology of the continuity, the expressive content. [...] He must perform his function of giving form to the music in a way which is not consciously organised [...] either arbitrarily, feeling his way, following the dictates of his ego, or more or less

unknowingly, by going inwards with reference to the structure of his mind to a point in dreams [...].”²

By the time we get to Christian Wolff’s *For 1, 2 or 3 people* (1964), the focus has shifted away from the ‘ego’ of the performer as the governing factor for the presentation of an open work to, instead, their ability to pay close attention to the musical activities of the other players. Careful listening on the part of the performer to what the other performers are doing, and responding musically to a situation which has developed in the moment, brings about a greater sense of urgency in the realisation of the work and puts much more emphasis on the interactive role of the players. While a piece like *Twenty-five Pages* may, to some extent, be prepared by the performer in advance of the performance by working out a desired sequence of events in rehearsals, Wolff’s composition introduces a much higher degree of unpredictability *during* the performance. The composer, rather than pre-elaborating musical material as individual ‘objects’, inherently fixed through notation (as in *Klavierstück XI*), provides a set of regulations “outlining a *situation* in which sounds may occur, a process of generating action (sounding or otherwise), a *field* delineated by certain compositional ‘rules’”.³

The score for *For 1, 2 or 3 people* is very interesting, in as far as its notation suggests, at first glance, a generous degree of freedom in the way it may be interpreted. The obvious presence of symbols such as lines, circles and arrows adds a strong graphical element to the ten pages, or parts, of the score, implying a liberal amount of choice to

² John Cage, 2009, p. 35

³ Michael Nyman, 1999, p. 4

be had for the performer. And, of course, the very title of the piece seems to expresses a relatively relaxed agenda regarding its performance, leaving unspecified the instrumentation and number of players, or *people* (1-3), for any given recital. However, there is an extensive list of instructions given at the beginning of the score, which details quite clearly how the different notated events are to be played. Individual symbols are explained with great care in how they stand for different materials used to produce the sounds, e.g. wood or metal, as well as various actions employed when making these sounds, e.g. tapping, breathing and plucking. It gets particularly interesting where a symbol denotes the requirement for player coordination, that is to say, the player has to listen out for sonic cues in the material played by the other players (or, in the case of a single performer, noises coming out of the environment) and react with their own sound making based on the instruction/score element they have chosen. That could mean, for example, that a player is to make a sound just after a previous sound has begun (from another player) and hold it until the previous sound stops, or, to choose the register for a particular sound depending on its relationship to other sounds immediately preceding it. The notion of composition as *process*, here, the process of performing the score dependent on the spontaneous and interactive behaviour of the players based on learnt instructions, becomes evident. For the player the performance situation changes significantly with such a work. Compared to *Intermission 6*, to take an example from earlier, in *For 1, 2 or 3 people* there is a much higher degree of unpredictability, not necessarily in the manner in which players impulsively decide which musical event to perform next, but rather in the way *how* the players are executing that event depending on their perception of the sounds around them. David Behrman likens this situation to a game of table tennis:

The player's situation might be compared to that of a ping-pong player awaiting his opponent's fast serve: he knows what is coming (the serve) and knows what he must do when it comes (return it); but the details of how and when these take place are determined only at the moment of their occurrence.⁴

This makes for a tense performance scenario in which the performer has to be ready to interact with their environment for a prolonged period of time. With this comes a pronounced sense of involvement and responsibility on the part of the performer whose judgement has a clear impact on the sounds that are being made.

Given the indeterminate nature of the notation and the open instrumentation aspect in *For 1, 2 or 3 people*, the differences between performances are considerable, and it means that the *identity* of the piece is formed anew with each new performance as an expression of the players' mood and readiness to experiment in that particular moment. It is the result of a finely tuned and socially involving interaction between the performers. In other words, the identity of this work is found in the very context, as provided by the composer through the score and further instructions, in which players interact with an equal share of responsibility. In my own open form works the idea of identity is expressed primarily through fixing the musical and sonic material used through fairly detailed notation (melodic fragments, chords, dynamic markings) and pre-elaborated electronic samples. Different versions of my compositions sound remarkably similar due to both the imposed macro-structural boundaries, e.g. overall duration, sectional sequence, as well as the clearly defined score and sound elements, using the open form concept primarily as a means to relax the temporal relationships in mixed works. In that respect, unlike Wolff's piece, my works do not perhaps call

⁴ Michael Nyman, 1999, p. 18

for true *inter*-action on the part of the players, but rather, a *re*-action to the material presented by the composer (i.e. myself). There is, however, enough freedom in the performance of my compositions as to allow for the “unique moment”, as Michael Nyman calls it, to occur, that is to have spontaneously formed sound constellations produce a satisfying aural experience.

Exploring new ways of musical interaction, in his 1986 composition *Voyager* George Lewis makes use of the computer as an interactive tool. He writes a software programme that acts as a “virtual improvising orchestra” (with the orchestral sounds being synthesised inside the computer), “conceived as a set of 64 asynchronously operating single-voice MIDI-controlled “players”, all generating music in real-time”⁵. In a discussion of his computer music composition Lewis explains that the software ‘listens’ to the sounds of up to two acoustic instruments, by means of a pitch follower device, and translates the information received into streams of MIDI data. Evaluating the obtained data, the musical response of the computer will depend on various “behaviour specifications” running at short intervals inside the programme. These determine ensemble combinations (numbers and types of players), and make choices from a variety of algorithms relating to the generation of melody, tempo, spacing between notes, etc. More interestingly, though:

Each new ensemble chooses not only a distinct group sonority, but a unique response to input, deciding which improviser – one, both or none – will influence its output behaviour. Further options include imitating, directly opposing or ignoring the information coming from the improvisers. [...] This information is used [...] to decide in greater detail how each ensemble will respond to elements of the input, such as tempo (speed), probability of playing a note, the spacing between notes,

⁵ George Lewis, 2000, p. 34

melodic interval width, choice of primary pitch material (including a pitchset based on the last several notes received) octave range, microtonal transposition and volume.⁶

Here, the computer can be viewed as taking on a similarly autonomous role as a performer as the players in Wolff's *For 1, 2 or 3 people*. A set of 'rules', may they be written instructions as part of a musical score (as in Wolff's piece), or code written as part of a computer programme (as in *Voyager*), will set the context for the interactive behaviour for the player. Due to its generative activities the *Voyager* programme will have similar musical significance for the human player as he/she reacts and communicates sonically with the computer system. Although *Voyager* is designed for the improvising musician the composition is still very much that of George Lewis. It represents the particular ideas of its creator. Lewis makes clear that "part of the task of constructing *Voyager* consisted of providing the program with its own sound"⁷; and the 'sound' of this composition (as identifiable, not with timbre alone, but with the expression of personality), its *identity*, as articulated through precise computer algorithms designed by the composer, can then be viewed more generally as an expression of African art. Lewis calls this the "aesthetics of multidominance", which involves "the multiple use of colors in intense degrees, or the multiple use of textures, design patterns, or shapes [...] found quite routinely in musical and visual works of Africa and its diaspora"⁸. This cultural connection with *Voyager* becomes apparent when Lewis says

I conceive a performance of *Voyager* as multiple parallel streams of music generation, emanating from both the computers and the humans – a non-hierarchical,

⁶ George Lewis, 2000, pp. 35-36

⁷ George Lewis, 2000, p. 37

⁸ George Lewis, 2000, pp. 33-34

improvisational, subject-subject model of discourse, [...] Both the sonic behaviour and the program structure of *Voyager* exhibit multidominance in a number of respects.⁹

While creating interactive computer systems provide exiting new ways of music making, designing specific software programme as part of the composition will bring up potential issues of a technical nature. In order to make recurring performances of a piece like *Voyager* practically feasible the computer programme has to be updated and adapted as and when new soft- and hardware systems render older systems obsolete. Rapid advances in technology mean that computer-driven software environments will have to be modified if the systems they were conceived to run on originally become unavailable. It is very likely that George Lewis has had to port the first version of *Voyager*, originally written in 1986 using the programming language Forth, over to a more recent programming environment, such as Max. This may present too much of an inconvenience for some composers. In my own mixed music compositions I favour the use of pre-elaborated samples, the playback of which, despite being open and flexible, can be implemented rather easily using different pieces of computer software. In addition, it eliminates the need for a more elaborate technical setup using microphones, making it a potentially more portable and convenient system, especially with regard to rehearsals.

In *Voyager* the aspect of free improvisation is strong. Nonetheless, the specific algorithms written for the work by the composer produce a recognisable sound, or personality, and, unless the algorithms are changed, the execution of the programme is subject to these algorithmic boundaries. Since the performer will have no

⁹ George Lewis, 2000, p.34

immediate influence on re-setting those, the musical interaction, which is a big feature in *Voyager*, does not find an equally emphatic expression in a social interaction between the performing agents, i.e. human and machine. John Zorn, for example, has produced a series of games pieces that place more emphasis on the social aspect of inter-human relationships both during and in preparation for a performance. He has achieved this by devising sets of cues and rules for a number of his compositions, which help establish a performance framework for the players without being specific about actual musical material (pitches, chords, etc.), but, instead, focusing on the personal dynamics and chemistry within a group of performers. Arguably the most famous of Zorn's game pieces, *Cobra*, which he completed in 1984, is a striking example of his compositional approach of taking advantage of the players' own musical experiences. In that regard, the work could almost be viewed as a social experiment as well as a musical composition. In *Cobra*, Zorn devises a set of cues notated on cards, and rules corresponding to the cues that direct the players what to do. A *prompter*, or conductor, sitting in the centre of a semi-circle formed by the performers, initiates cues by holding up a card. Additional hand signals may be used to give further instructions such as designating a particular group of players for performance, or determining the speed and intensity of a chosen action. Executing the cues requires the utmost attention of all of the players all of the time, leading to a high degree of interaction. Performers may be asked to make eye contact with another performer and play a duo, or to pass single notes extremely quickly from one player to another in a chain, again, using eye contact to send the event. What is really interesting, though, is that any player can *request* cues from the prompter at any time, thereby making an effective contribution not only through their own improvisational sensibilities, but by being involved in choosing instrumental textures and player

behaviour leading to spontaneous structural developments during the performance. Even more excitingly, Zorn puts in place a *guerrilla system*, which allows any player to temporarily seize control from the prompter and, in turn, command the actions of other players, thereby contesting the group leader's (prompter's) authority. As a guerrilla a player can call *tactics* on any other player, such as telling them to imitate other players, to play drones, or to stop playing altogether. There can only be one guerrilla at a time. Anybody who wants to become a guerrilla motions to the prompter with a headband, which he or she will subsequently put on, as will the prompter, in order to identify a guerrilla situation. In a 1992 television interview Zorn explains his focus, in *Cobra*, on the social interaction of players, rather than sound:

I don't talk about any sounds that anybody is making; I talk about the improvisers themselves. You can play with this person at this time, if you want, or with this person, or in alternation with that person, but what you play is totally up to you. And who you decide to play with is totally up to you. [...] For me it is more about the live situation, because you actually see the physicality of the people going through the process of dealing with these set rules. Every society has rules that people deal with in different ways. What I basically created is a small society, and everybody kind of finds their own position in that society. It really becomes like a psycho drama. It's like scream therapy, or primal therapy. People are given power, and it's very interesting to see which people like to run with that power, which people like to run away from it, who are very docile and just do what they're told, and who try very hard to get more control and more power.¹⁰

¹⁰ *From On the Edge (Improvisation: Its Nature and Practice)*, 4-part television documentary by Derek Bailey (1992) for UK's Channel 4.

If the composer does not specify the sounds, and neither the instrumentation, number of players nor the duration of the piece, what is it that forms its identity? Are there any recognisable features that connect the different performances of this work? With regard to his game pieces Zorn himself offers this explanation:

What remained were scores that did not refer to *sound* or *time* – two parameters traditionally inseparable from the art of music – but were a complex set of rules that, in a sense, turned players on and off like toggle switches to such a complicated degree that it didn't really matter what the content was. The music could go just about anywhere. The piece was still itself. Game pieces can sound like anything and last any length depending on the players and the moment, but they always somehow retain their own identity, the way baseball differs from croquet.¹¹

A recent performance¹² of *Cobra* from 2014 presented by the improvisation department at the New England Conservatory in Boston, USA, and co-curated by John Zorn himself, reveals how much the work still generates excitement amongst both players and the audience. The sheer energy, physicality and sense of alertness that emanates from the ensemble is incredible and easily translates to the viewer even via the medium of online video. The players are feeding off each other, and the audience, which can be heard cheering and laughing during the performance, are feeding off the players. The work, despite having been conceived 30 years ago, still sounds fresh and relevant, due to its reliance on the players' interaction and personalities, rather than 'sound' itself.

¹¹ John Zorn, 2005, p. 200

¹² Actually, three short performances (5 minutes each), with only a very short pause between them.

Michael Pisaro is a composer who still very much pays attention to the sonic quality in his work. In his 2005 composition *Violin and Materials* he creates a small set of instructions for the violin player telling him/her to look for common objects in the immediate environment, objects made from rock, metal or wood, such as a metal bucket or a tree branch. The violinist is then asked to take his/her bow, to discover a way of making sound on that object, and to make that sound for a long time to allow the listener to fully hear what it sounds like. The player will then search for a sound on the violin, which approximates the sound made earlier on the object. As the performance goes on, the player alternates between bowing the object and bowing the violin, finding new sounds, and recreating those sounds. In a way, this follows on from the Cagean concept of inclusion of any sound found in the natural or man-made environment, and the pure appreciation of its intrinsic sonic qualities, freed from any hierarchical structures. Pisaro is breaking down the perceived divide between the pure tones of an instrument, making it stand out from the environment, and the noisy sounds that dominate the world around us. The situation for both the performer and the listener changes radically during a performance of *Violin and Materials* when compared to a work like *Cobra*. The *raison d'être* of Zorn's piece lies in the social interaction of players, rendering the sounds coming out of the performance secondary, while the emphasis in Pisaro's work is on deep listening, on directing one's focus towards the subtleties of sonic change, on challenging the listener's ear. In his 1998 essay *Hit or Miss* Michael Pisaro explains his motives:

[I] seek to make a musical object which exists in as direct a relationship to the listener as possible. Anyone should, through careful listening, be able to understand what is happening in one of my pieces. Like most of the others associated with experimental music, I attempt to strip away as much of the obvious formal complexity from a work

as possible: the work is direct and simple. What it gives up in complexity is hopefully balanced by its impact.¹³

In a 2008 recording of *Violin and Materials* performed by Johnny Chang, and lasting almost 26 minutes, the requirement for ‘careful listening’ and attention to detail becomes apparent. A very sparse texture, long gaps between sounds, events on the border between sound and silence, and the resulting awareness of other sounds, seemingly non-related to the performance itself, all make for an unusual listening experience, especially without any visual cues relating to the performer. In this composition Pisaro is not concerned with employing ‘stand-out’ musical formulations and articulations, but with a more general concept of sonic ‘change’. And the composer, Pisaro, becomes the catalyst for that change.

The works described above by Wolff, Lewis, Zorn and Pisaro all push the boundaries of the more established concept of a composer as somebody who is in complete control of his artistic output. Where the composer relies extensively on the improvisational input of the player to give content to the work, specifically pitches, chords, melodies, rhythms, he/she must accept the compositional consequences, namely those that the performer will become co-composer.

My pursuit of finding a way to combine my interest in the European avant-garde with my interest in the experimental music tradition has led me to a point where, as a composer, I still am concerned with control over musical material and setting structural confines. My own use of open form concepts is characterised by a more

¹³ Michael Pisaro, 1998.

‘restrained’ approach, where the primary concern is to bring about a collaborative performance scenario in which the player has the opportunity to make individual *structural* decisions, thus contributing to the realisation of the work. At the same time, it is important to me to retain authorship for my own works. Therefore, especially when considering that open form compositions come in a great variety of styles with varying degrees of ‘freedom’ and indeterminacy, I have developed a particular conceptual framework for my own compositions which allows me to retain control over all musical material developed and subsequently presented to the performer, even to organise the overall direction of the work during performance. In that regard, I predominantly make use of two types of open form. John Dack has called these *multi-valent*, or *multi-combinatorial*, and *variable*. Dack¹⁴ writes that:

[...] in multi-valent form the details of a work are fixed in what are usually brief fragments or sections. [...] [T]heir positions in time and thus within the composition’s global form, are left to the decisions of the performer.

and continues that:

[...] in variable form the overall shape of the work is fixed but the precise details within the constituent sections are open to reconfiguration as the piece progresses.

To that extent, I am generally specific about pitch material, phrasing and instrumental arrangement. The built-in freedom is expressed primarily through the performer’s initiative when choosing the actual order of musical events. This usually happens

¹⁴ John Dack, 2012, p. 126. Dack himself has based his classifications on Walter Gieseler’s analysis of Open Form types, as presented by Gieseler in his book *Komposition im 20. Jahrhundert* (1975).

within timed sections, which have been arranged into an overall set sequence as part of the compositional process. For me, it is important that my open form works will not be uncontrollably different from one performance to the next, and by clearly defining pitch material, pitch combinations, rhythmic proportions, ideas about texture and orchestration, and by producing the electronic sound element of the composition myself, I wish to create a piece of music which will reveal an individual character, and project to the listener a sound world of its own.

The following five chapters illustrate how my approach to open form composition has developed over time through my own work, beginning in Chapter One with a description of the original inspiration (in form of Henry Pousseur's tape piece *Scambi*) that set me on this particular path. Chapter Two describes the first tentative steps towards combining electronic and instrumental sounds within an open form framework resulting in the composing of *Flinx* (for piano and live electronics). It is not until *Skein* (for clarinet and electronic sound) and *Together-Apart* (for piano and electronic sound), however, as explained in Chapter Three, that the instrumental parts in my works receive an equal open form 'treatment' to the electronic part. In fact, it is around that time in 2012 that my compositional focus shifts to placing more emphasis on the instrumental writing in my music, with the subsequent addition of the electronic parts 'augmenting' the piece sonically and texturally. Furthering this development, the 'New York School' of composers, dating back to the 1950s and 60s, has been a clear and important influence on me, especially Earle Brown. His influence on my work becomes particularly apparent in my compositions *Closer* (for violin, cello and electronic sound) and *39* (for 10-piece ensemble and electronic sound), both discussed in Chapter Four. Chapter Five, finally, tells of my fairly short-

lived exploration of the even more indeterminate in music, pushing my notion of handing over control to the performer beyond the merely structural in *Hope Street* (for four instruments and soundscape), while still being determined to retain the ‘last word’ as the composer. The same chapter concludes with the description of my last two pieces in the portfolio, *I Can Feel His Mouth* (for female voice, piano and electronic sound) and *Hidden Within* (for cello and electronic sound), which marks a clear return to having (as the composer) a much stronger influence over questions regarding pitch material, rhythm and even the synchronicity between parts.

1. *Distant Cousins* – electronic music composition

1.1 Breaking the mould, defying the medium

It was sometime in 2011 that I discovered an electronic composition by Henri Pousseur called *Scambi*, which he composed in 1957. I was immediately intrigued, not necessarily because of its sound world, but because of its structural concept. The piece had been conceived to be in open form, at a time when electronic works were generally fixed onto magnetic tape, a medium that could not have been regarded as being particularly suitable for the realisation of ‘open’ pieces, which call for the re-ordering of musical material during performance. Pousseur’s commitment to open form becomes particularly evident when we see that he is applying his ideas to the arguably incompatible medium of tape, as expressed through *Scambi*. He was determined to take the technical hurdles, which each new realisation of the piece would have presented to him, namely the re-ordering and editing together of the 32 available tape sequences¹⁵ ahead of each performance. One practical challenge, however, remained unconquered at the time *Scambi* was realised, and that was to do with the real-time ordering of the tape fragments during performance, which was just not technically possible.

Today, with the ubiquitous nature of digital audio, where laptops, and now, increasingly, mobile devices, have become a familiar sight at concerts which incorporate any form of electronic music, one is completely freed of the kind of technical limitations that Henri Pousseur faced in 1957. Nowadays, it would be

¹⁵ These are sections of filtered white noise without any inherent directional tendencies, and none of them longer than 42 seconds. Pousseur did, however, provide a few guidelines to guarantee smooth transitions between sequences.

straightforward to make a real-time version of *Scambi*. All that is necessary are digitised versions of the 32 tape sequences and an mp3 player playing back the segments in a randomised fashion. Interestingly, some new versions of *Scambi* were realised about ten years ago as part of the *Scambi*-Project, which ran from 2003 – 2005 at Middlesex University London under the direction of Dr. John Dack. The project research focused on open forms in electroacoustic music between 1950 and 1980, and Pousseur's *Scambi* was examined in some detail as it represents an early and rare example of such works. Considering the potential of open forms within modern electronic music, one of the research questions identified by the *Scambi*-Project was "Why do many electroacoustic musicians continue to produce compositions with fixed, rather than 'open' forms?".

As I began contemplating that particular question, the observation it carried seemed to be congruent with my own personal experience. I had been to numerous electroacoustic concerts in the past, usually including both acousmatic¹⁶ and mixed electroacoustic works (or, mixed music works)¹⁷, and I have spoken to many composers who have presented their compositions at these concerts. Yet, I cannot recall a single piece that might have been in open form. In trying to answer the above question, I noted that most of the electroacoustic works that I had been listening to over the years seemed to have been composed with strong adherence to spectro-morphological principles. Here, great care is taken by the composer to create sound shapes, which develop purposefully over time with almost causal effect, and with a sense of unified motion. The meticulous editing process that composers of, in

¹⁶ Fixed media composition; formats include analogue tape, CD, or digital sound file. Designed to be played back through loudspeakers, either in a simple stereo pair formation, or a more elaborate multi-speaker set-up.

¹⁷ Works combining acoustic instruments with electronic sounds.

particular, acousmatic music employ while working in the studio, in order to produce sound spectra which unfold so sophisticatedly over time, often spanning large sections of the work, reflects the composer's desire to be in complete control of the sonic and structural outcome. Any attempt to introduce concepts of open form into this scenario might, in the eyes of the composer, not only jeopardise the coherent flow of the composition, but also potentially devalue the many hours spent painstakingly sequencing audio samples during the course of sound editing.

With the above question still lingering on my mind, I decided to compose an electronic piece in open form. Given the musical possibilities opened up by technological advances in digital audio over recent decades, and my own developing interest in exploring the potential of *Max*¹⁸, I chose to adopt Pousseur's concept, developed for *Scambi*, and renew it by introducing a software-driven process¹⁹ for ordering the musical segments in real-time.

1.2 Genesis of a new work

As chance would have it, while still developing ideas for my first open form electronic work, the opportunity arose, quite suddenly, for a creative collaboration with German visual artist Bernd Straub. It would turn out to provide the perfect catalyst for articulating my newfound interest as part of a real project.

¹⁸ A visual programming languages used for the creation of interactive systems on a computer (www.cycling74.com).

¹⁹ The Technical Appendix includes a schematic diagram for *Distant Cousins* explaining the structure of the Max patch programmed. There is also a short video included in the Resources Appendix showing the software in use.

Bernd works mainly with old, analogue photography from a time roughly between the 1870s to the 1920s. For this project, he had acquired a collection of original ‘Carts de Visit’, a type of small portrait photography, showing the likenesses of various women aged between 18 and late 30s. Struck by their captivating and virtually timeless facial expressions, Bernd decided to put together a series of these and present them as a multi-media work titled *Entfernte Kusinen* (‘Distant Cousins’). In order to attain a certain dramatic effect in the way this piece could be presented, Bernd opted to subtly animate each photograph with an extremely slow fade-in and fade-out. As a result, the pictures would gradually manifest themselves in front of the viewer, to the point of full exposure, before dissolving back into a white background. This was intended to be quite a prolonged process, lasting several minutes²⁰, so as to convey the idea of distant ancestors visiting from the past.

In my accompanying sound composition, I aimed to support both the structure and atmosphere of the video installation. Consistent with the individual characteristics of the portraits, I decided that each cousin would need her own, personalised musical backdrop. At the same time, however, I was determined to maintain a clear sonic coherence for all of the soundtracks in order to underline the visual consistency of the portraits. Therefore, my intention was for all ‘cousins’ to be composed using the same sound material. Furthermore, each soundtrack would be closely integrated with the corresponding on-screen appearance of each ‘cousin’, with respect to both length and dynamics. Following the palindrome design of the visuals, the sound would unfold in a similar manner, with increasing dynamics and textural density

²⁰ Eventually, it was decided that each manifestation of a ‘cousin’ would last for 7.5 minutes, allowing for a very ‘comfortable’ eight portraits per hour.

towards the mid-point at 3.45 minutes, after which both music and picture would begin to gradually ebb.

The basic sound material used for this composition was a 1924 recording of German soprano Elisabeth Rethberg performing Schubert's *Ave Maria*. It was carefully chosen to complement the photographs Bernd had selected, both in terms of historical period (early 20th Century), as well as matching a female voice with the portraits, imagining Frau Rethberg lending her voice to the 'cousins'. The recording was subjected to extensive digital processing²¹ allowing me to produce heavily abstracted sound events, mainly of two types: waves of sustained blocks of sound occasionally revealing, and continuously transforming Frau Rethberg's vocal utterances, and short, sharp, snapping noises which were derived from the crackling sounds of the old Gramophone recording. Working with these two groups of sounds I built a collection of sonic events with varying dynamics and spatial movement (left channel, right channel)²². In order to arrange these sound events in such a way that they would conform to the aforementioned palindrome macro-structure of the video, whilst still aiming to produce a distinct musical version for each 'cousin' (within a potentially open-ended media installation), I introduced the concept of *local variation*. As a means to quickly create many individual versions of the soundtrack, and to allow for the process of re-ordering sound events to happen in real-time, if that was to be a desired part of the installation, I programmed a Max patch designed to automate the procedure. I settled on the idea of producing controlled variation within segments of 1.15 minutes in length (6 in total for every 7.5 minute version), meaning that each of

²¹ Various audio processing types of *Freezing* and *Filtering*.

²² These events would ultimately combine to evoke the particular sound world I had imagined for this composition, in which I hear the dial on an old analogue radio being turned repeatedly, tuning in to voices of the past. Every time the dial is turned one can hear the crackling sounds between stations, until a new voice is found.

the 6 sections contained a collection of distinct samples which were carefully chosen to follow the overall structure of the piece, yet with the internal ordering and layering of sound files left to random procedures. This way, different relationships would form between sounds for each new version of the composition, generating ever-changing sound constructs both with respect to timbre and spatial movement.

The installation was eventually premiered in November 2013 at the *Coelner Zimmer* gallery in Düsseldorf, Germany. On this occasion, Bernd had decided to limit the number of portraits to 8 contained within a one-hour video loop. For logistical reasons we kept the technical set-up simple by producing 8 different versions of the sound composition prior to the exhibition, adding them to the videos as fixed soundtracks.

2. *Flinc* – for piano and electronic sound

2.1 Open Form on a different timescale

Determined to extend the concept I had developed for *Distant Cousins*, that is creating a software environment to support the realisation of open form structures, the aim for my next composition was to make the selection process more complex. Rather than constructing the work from a selection of pre-elaborated sound files, each one being of considerable length, as in the case of *Distant Cousins*, I began to focus my attention on exploring a similar procedure, however within the realm of near-*micro sound*, i.e. working with very small sonic fragments. By ‘shrinking’ the time scale of the system underlying the selection process, I was able to limit the amount of sizable sound events to just one. A single sound file, no longer than 3-4 minutes, would suffice to provide the sonic material. The idea was to cut this sound file up into short bursts of audio, and have these re-arranged in real-time with the aid of computer software. My intention was to downscale the open form procedure, which had previously governed the structure of *Distant Cousins* at the macro-level (overall shape of the composition), to a smaller time frame. Now, the selection process would happen at near-micro-level (approximately 50 milliseconds to 2 seconds) and form a continuous stream of sound.

I was keen to develop my own software elements for this composition, mainly because it would allow me to better express my own exact technical concept, and not run the risk of being directed towards working in a particular way by using software, which already existed. Since I had already used Max during the realisation of *Distant*

Cousins, and intent on learning more about its potential, I opted to make it part of this project as well.

2.2 Technical implementation

As I was learning about various Max objects, there were two distinct ideas crystallising in my mind with regards to the software implementation of my earlier concepts. This led me to write two separate Max patches, both of which have been explained through schematic diagrams and added to the Technical Appendix. Additionally, there are two short videos included with the Resources Appendix showing both Max patches running inside Ableton Live²³. It is also important to note at this point, that during the programming phase I had decided to widen the scope of this composition by including an instrumental part for piano. This meant that the electronic element of this work would assume a subtler role than previously intended, and turn into the electronic accompaniment for the instrumental score.

2.3 Composing the score

In order to further integrate the instrumental part with the electronic accompaniment, in a way that would go beyond simple timbre matching, I decided to have the piano recordings that represented the concrete sonic material for the Max patches also constitute the material origin for the score. In other words, I planned to derive the instrumental score directly from the sound material. I recalled a function in Logic Pro²⁴ software called *Audio-to-Score*, which helps transform an audio recording into musical notation. While the underlying algorithm works best on simple melodic lines

²³ Digital Audio Workstation (www.ableton.com).

²⁴ Digital Audio Workstation (www.apple.com).

(as in monophonic audio material), I began experimenting with applying this function to the rhythmically rather complex piano recordings I had made previously. Given the nature of these recordings there was no apparent pitch material contained within them for the most part. Instead, there were a great variety of percussive sounds present. Therefore, I focused on utilising this function to generate some sort of rhythmic template for the score. When applying this function to an audio recording, it analyses the audio file for transients (short, high-amplitude sound at the beginning of a waveform), assigning them with dedicated markers generated during the process. An associated MIDI track is created which turns these markers into MIDI notes. These MIDI notes are clearly laid out along Logic Pro's timeline, while constituting an event independent from the original audio recording, ready for further (MIDI) editing.



Fig. 2.1: Logic Pro 9 screenshot showing “Transient Markers” lining up with prominent spikes in the sound file.

With the MIDI information, I proceeded to produce the rhythmic ‘skeleton’ for the instrumental part sequencing multiple MIDI regions, which would subsequently be ‘fleshed out’ with pitches. Thus, each transient marker that was converted to a MIDI note would come to represent a single note in the score. The exact position of notes

in the score, their exact placement inside a bar, as well as their individual duration was determined by my choice of quantisation setting in the parameter window of the Audio-to-Score function. I set the global tempo and time signature in Logic Pro at 60 BPM and 4/4 respectively. Therefore, as an example, when the beginning of a sound file was lined up with the beginning of a bar in Logic Pro, and a transient had been detected at precisely 2 seconds after the start of this sound file, with the next transient identified at 3 seconds (i.e. 1 second later), a note was created on the second beat of that bar, and another one on the third beat. Depending on the settings I had chosen for the analysis of a particular audio file, the maximum length of each note could vary. In this example, the note created on the second beat of the bar could be a quarter note, lasting until the next note. Alternatively, with the maximum note length set to a value of an 8th, a quaver note would have been created followed by a quaver rest, and so forth.

Once the rhythmic frame had been created, I proceeded with generating the pitch material. In order to keep the focus on the rhythmically complex structure of the piece, rather than any particular harmonic development, I came to the decision to use all 12 notes of the chromatic scale as equally as possible. This way, I was hoping to direct the listener's attention primarily towards the elaborate rhythmic formations, while having the pitch collections form an atonal equilibrium to provide the backdrop, avoiding attunement to a particular tonal system. Again, I turned to Logic Pro software for producing the musical elements. This time, all of the MIDI notes, which had been put in place during the previous procedure, were assigned a random pitch each using Logic's built-in algorithm, all the while maintaining an equal distribution of the 12 chromatic notes. The octave range, and, therefore, the placement of selected

MIDI notes within that range, varied from section to section, as I kept adjusting the parameters for the Logic Pro function. The goal was to create a sense of contour with an overall octave range that was continuously alternating between expansion and compression.



Fig. 2.2: *Flinch* first movement, bars 4-9.

At the end of this process, the MIDI score generated was imported to Sibelius software, in which the score layout was refined, including the editing of single pitches where overtly tonal moments had occurred (repeating major/minor triads). At this stage, I also inserted markings for dynamics and phrasing in order to add an expressive character to the work. As such, the score for *Flinch* is notated in a fairly conventional way. There are a couple of indications given, i.e. long fermatas and interrupted staves (see Figure 2.2), which are meant to encourage the performer to pause and listen to the electronic part before continuing at their own discretion. These moments were designed to allow for the live electronic part to temporarily come to the fore and reveal itself in more detail, when it is otherwise subordinated to the piano part.

Reflecting on my method of generating the pitch material for *Flinch* now, I would compare it to John Cage's earlier system of 'indeterminacy with respect to composition', as epitomized by his *Music of Changes* (1951), albeit without the act of tossing coins to determine pitch, duration and attack, but, instead, using a computer algorithm to make certain choices. As with the Cage piece, the score for *Flinch* is fixed, and the open form concept of my Max patches does not translate to the instrumental part with equal vigour when looking at the performance aspect. Of course, that is precisely why Cage himself developed a different technique later on, which would allow him to compose works that remained 'indeterminate with respect to their performance', and, thus, grant the performer more freedom during the execution of these works. Having completed the score for *Flinch*, I found myself in a similar situation, where I, too, desired more structural flexibility for my instrumental parts. Chapter 3 picks up on that particular point, the idea of extending my earlier concepts of open form into the realm of the musical performer.

3. *Skein* – for clarinet and electronic sound, *Together-Apart* – for piano and electronic sound

3.1 Opening up the score

3.1.1 *Skein*

As mentioned at the end of the previous chapter, I was motivated to apply the open form concepts I had been developing in the electronic parts of my recent compositions with equal commitment in the instrumental writing of my next work, thus granting the performer similar amounts of freedom. Revisiting *Flinch* in that respect, could mean allowing the pianist to re-order large chunks of the score as desired; the broken stave notation and long fermatas already helped designate quasi-self-contained sections of piano music. A reworking was also helped by the fact that there was no overarching musical development expressed throughout the structure, at least not in a strict motivic or harmonic sense. In that regard, I could see it work similarly to Henry Cowell's *Mosaic Quartet* for two violins, viola and cello, written in 1935, in which the five movements of the piece can be played in any desired order, with repetitions of individual movements being encouraged. Here, the shortest movement (i.e. the second) is still 13 bars long, however, lasting more than two minutes. In keeping with the way I had implemented the electronic parts for both *Distant Cousins* and *Flinch*, I envisaged for my next composition that it would consist of score fragments of considerably shorter durations, to the point where the performer would be able to shape brief musical phrases, no longer than 10-15 seconds, spontaneously, and make choices on a more local level, i.e. within a narrower time frame. Written approximately two decades after Cowell's *Mosaic Quartet*, Karlheinz Stockhausen's *Klavierstück XI* (1956) provided the perfect starting point for my own explorations.

Conceived in ‘mobile form’, *Klavierstück XI* is composed from 19 piano fragments, which have been arranged on a single sheet of paper. While the notation of the individual fragments is precise, including rhythmic and dynamic indications, the order in which they are played is left to the performer’s choice. Despite its polyvalent structure, however, *Klavierstück XI* is “finite”, as Stockhausen’s instruction indicates that the performance shall end as soon as a fragment has been arrived at for the third time. Nonetheless, it does not presuppose that all fragments will have been played twice up to that point, and, therefore, the overall duration of the piece may vary greatly. This concept appealed to me very much, that is, to enable the performer to exercise freedom of choice, and, at the same time, conceive the composition in such a way that it is in itself ‘closed’, limited, governed by an organising rule, and reaching some sort of “conclusion”.²⁵

I decided to base the pitch material of my new work on a fixed series, as a means to connect the musical fragments coherently with an overriding sense of oneness, as well as to provide an atonal setting. Avoiding any obvious tonal tendencies was important to me, as I believed this to be most conducive to supporting an open form structure.

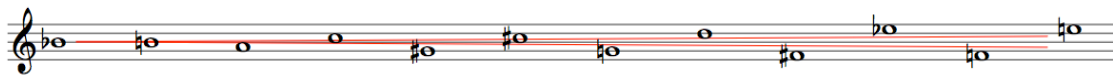


Fig. 3.1: *Skein* series with increasing intervals, V shape superimposed (in red).

²⁵ In *The Poetics of the Open Work* (1989, p. 19), Umberto Eco classifies *Klavierstück XI* and pieces of similar nature as ‘work in movement’, in which “the invitation [i.e. to re-order musical material] offers the performer the chance of an oriented insertion into something which always remains the world intended by the author.”

The series itself was inspired by a particular shape, specifically, that of the flying V formation²⁶ of geese and ducks, just something I was interested in at the time (see Figure 3.1). It occurred to me that the potential for deriving musical material from this shape could extend to other aspects of the composition, such as dynamics (*crescendo*, *decrescendo*), tempo (*accelerando*, *ritardando*) and internal structure. It would also provide the title for the piece - *Skein*, a word occasionally used to describe the V formation. In order to keep with the symmetrical quality of this shape, I intended to arrange larger sections of *Skein* according to a comparable sense of balance, eager to use graphical details to illustrate and support my intention to compose a work in ‘closed’ open form. As a result, the layout of the score itself has been constructed symmetrically, with an equal number of fragments (13) on each of the two pages, arranged in a way which makes an obvious reference to the shape of both the V formation and the wedge shape of the series. The latter exists in 4 versions in this composition, and they unfold across multiple fragments according to the following design:

Original – page 1, top half

Inversion – page 1, bottom half

Retrograde – page 2, top half

Retrograde-Inversion – page 2, bottom half

By using the original and retrograde versions on page 1 and page 2 respectively I wanted to further convey the symmetrical concept taken from the original shape of the V formation, since the intervallic progressions were both ‘opening up’ and ‘closing in’ with equal balance. In order to have this aspect of symmetry extend into the performance scenario with greater immediacy, and to establish a causal principle

²⁶ The symmetric flight formation of certain migratory birds greatly boosts efficiency in air.

regarding the way in which the individual fragments may be sequenced, I introduced a rule stating that the performer is to play a musical event from page 1 first, followed by a fragment from page 2. Thus, each possible 4-bar sequence performed would itself form a completed version of the causal relations concept between musical materials, already implied by the symmetrical layout of the score, i.e. what “opens up”, “closes in”.

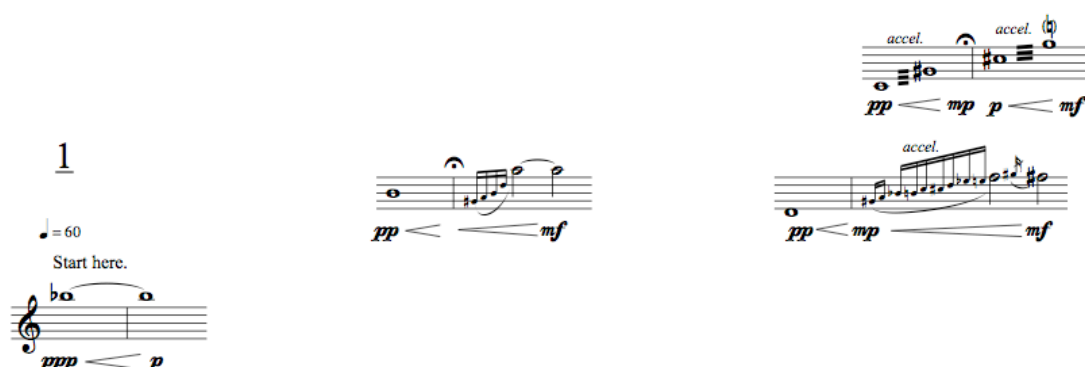


Fig. 3.2: *Skein* – first four fragments on the top half of page 1.

Figure 3.2 shows how the series, here in its original form, unfolds across multiple fragments from left to right. Starting with the Bb in the leftmost fragment, the series continues with the B and A in the next event immediately to the right, and then with the C and G#, C# and G in the top one of the two fragments on the right hand side. Note, that I have used grace notes throughout the score, none of which are actually derived from the main series, and, as such, function as embellishments to the longer notes. These longer notes can be seen as structural pillars (or ‘serial anchors’) projecting the main series across multiple fragments. Note also, how dynamics and tempo markings were used to articulate the shape, which is governing the series, resulting in increasing loudness and increasing tempo (*accel.*). Indeed, the intervals between those notes forming the grace note embellishments are progressively

widening, which, again, expresses the V shape. On page 2 of the score these features have been reversed, using the series in its inverted form, the opposite outcome is achieved, a ‘closing in’. Of course, during a performance the series is ‘broken apart’ due to the open form nature of the work, at which point it becomes evident that it (the series) was used only as a pragmatic means to make note-to-note decisions during the composition process. Regardless of the expected ‘dismantling’ of the series on a local level, the global atonal balance of the piece is kept, as all fragments will have been played eventually during the performance of *Skein*, and that is what I set out to do at the beginning.

3.1.2 *Together-Apart*

Aiming to expand on the concept of composing score fragments, as I had done for *Skein*, I opted for my next piece to return to writing for the piano. Realising that the conventional way of scoring piano music, employing both treble and bass clef, would allow me to add complexity to the choice process for the performer, I decided to break with standard piano notation and separate the two clefs from each other, essentially scoring both left and right hand parts as standalones. As a consequence, the performer would be in the position to not only re-order set piano events, as in the case with Stockhausen’s *Klavierstück XI*, but also have a major influence on the inner structure of the fragments themselves, and determine the contrapuntal relationships between the two hands. In praxis, this posed a particular challenge. A traditional paper score would not allow the performer to quickly combine the various left- and right-hand fragments and arrange them in a way where they would assume the conventional layout of a piano score, with the treble staff at the top and the bass staff at the bottom. This, however, would have to be a necessary arrangement, if the

performer was to be able to read the score comfortably. Cutting out the fragments from the paper score prior to the performance would also defeat the idea of making spontaneous decisions. In order to overcome this technical challenge, I imagined that a tablet device would provide an ideal solution. With a screen big enough to display a musical score with sufficient detail, and with the interactive nature of its multi-touch surface, a regular iPad would easily be able to take the place of a conventional paper score. Turning to Max once again in order to prototype my idea, I set out to programme the basic mechanism of this interactive score. The concept for the design was quite simple, namely, to have all available fragments for both left and right hand be visible in a reduced size on the iPad screen. The performer would be able to select any fragment by touching the thumbnail image, upon which the score event would be moved into the centre of the screen and be presented in a larger size, whilst also maintaining the conventional treble and bass clef layout. Ultimately, my goal was to have the programme run natively on an iPad, which would mean doing additional computer programming at a later stage. For the time being, I used the *Mira App*²⁷, which, as the name suggests, allows for certain elements of a Max patch to be shown on an iPad, which has to be connected to a computer over a wireless network. In turn, the touch screen of the iPad allows information to be triggered inside the Max patch, which is why the App proved useful for my interactive score. Running the patch for *Together-Apart* in Presentation Mode, I was able to have only those Max elements displayed on the iPad, which formed the Graphical User Interface (i.e. the score), and these were predominantly objects (i.e. *fpic*) holding the images of the score fragments.

²⁷ *Mira* is distributed by Cycling '74, a company who creates and sells software, including Max.

In a similar way to *Skein*, the idea for organising the pitch material in *Together-Apart* was derived directly from the title of the composition. In the latter, the intervals of the minor and major second became pivotal in creating a 12-tone row (i.e. minor second = “together”, major second = “apart”), which was used in various formations to compose the different piano fragments.

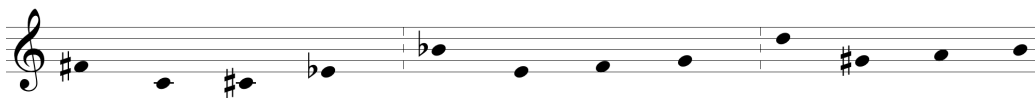


Fig. 3.3: 1 of a total of 12 tone row versions used for the Treble fragments.

Figure 3.3 shows how the tone row was ‘assembled’ by devising three serial four-note cells, all with the same internal intervallic configuration, featuring the semitone – tone ascent, and a preceding tritone to complete the sequence. By changing the order of the three cells and making use of all of the possible permutations, I was able to produce six different tone rows, and then six more, after subjecting the first six versions to the process of mirror inversion. Unlike *Skein*, where single tone rows were expanding across multiple fragments of the score, for *Together-Apart* I decided that the fragments would form self-sufficient little units with greater chromatic autonomy, meaning that now each fragment was composed from an entire tone row. Hence, the 12 versions already generated gave me 12 distinct treble events, and by applying retrograde and retrograde-inversion techniques to those, the result was providing a further 12 versions used as the basis for 12 bass fragments.

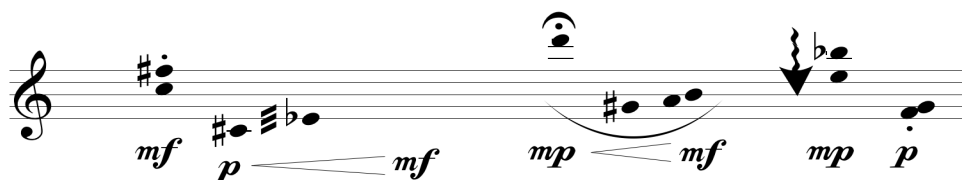


Fig. 3.4: 1 of the 12 treble fragments.

In order to introduce even more flexibility with regards to the left hand - right hand synchronisation, I scored the music without specifying exact time/note values (unlike *Skein*), but, instead, used a kind of proportional notation, where differently sized gaps between notes indicate variable durations, to be interpreted by the performer (see Figure 3.4). This way, particular harmonies (chords) or contrapuntal lines could emerge, simply by treating the ‘time stretch factor’ of the treble and bass fragments independently. I envisaged that this approach could be pushed to the point where, for example, two fragments of one hand could be played in the space of only one fragment of the other hand. Given that in *Together-Apart* there are obvious simultaneities of more than two pitches both within one hand and between two hands, harmonies form spontaneously during a performance, facilitated by the Open Form aspect of the composition. Rather than planning for any particular chords to occur when combining specific treble and bass fragments, my intention was, just as with *Skein*, to ensure that there would be a chromatic balance throughout the piece without any tonal tendencies. Since each of the fragments in *Together-Apart* use a complete 12-tone row, instead of just part of it, I feel that this balance has been achieved with greater consistency, when compared to *Skein*, as there is a more even circulation of all 12 pitches.

3.2 The electronic accompaniment

Both *Skein* and *Together-Apart* feature an electronic accompaniment. In both cases electronic sounds are played back indiscriminately. These sounds comprise a collection of sizable instrumental samples (5-15 seconds long, for both clarinet and piano) that I recorded specifically for these two compositions. Subjecting these samples to some basic sound transformations, including *filtering* and *freezing*, produced all of the finished electronic sounds. My aim was to create a thicker texture for what were, essentially, two works for solo instruments, and, given their fragmented, open form nature, to ensure the uninterrupted and smooth flow of sonic events throughout the performance. While the sound events for *Skein* reveal parts from the original score, allowing for an ad hoc, two-line counterpoint to emerge between the live instrument and the electronic complement, the samples used for *Together-Apart* were of a ‘noisier’ (i.e. non-pitched), more percussive character, derived from recordings of a piano soundboard. The way, in which the sample playback was organised in both compositions, was very similar. For *Skein*, I created a system²⁸, which was based on the idea of variability of *playback frequency*, meaning that, as the piece progressed, the timing with which the samples were triggered gradually intensified, producing a busier, denser texture. After a certain period this process would be reversed, and then, over the same time span as before, the sample playback would return to being less intense again. This procedure was another direct expression of the V shape, which had already been used as a template for various musical items in the score for *Skein*, as well as for the general aspect of symmetry

²⁸ The Technical Appendix includes a schematic diagram explaining the *Skein* Max patch. Also, there is a short video included with the Resources Appendix showing the *Skein* programme running on an iPhone.

between fragments as expressed through an equal sense of expansion and reduction (i.e. < >).

3.3 The ease of iOS

The technical setup for *Together-Apart* as described above is considerable. One needs a computer running the Max patch, as well as an iPad, which is connected wirelessly to that computer. On top of that, the *Mira* App needs to be installed on the iPad, which has to be purchased first. This poses a problem, if the person, wanting to rehearse the piece at home, has not got these items available. Therefore, it was my intention from the outset to create an iOS app from my Max patch, and make it available for free to anyone interested in performing the piece, in which case they would be able to simply download the app from the Apple App Store. Currently, there exists a particular protocol, which has to be followed when submitting mobile apps to the official App Store, in order to make sure they comply with Apple's guidelines. Furthermore, source coding is required when building the app. Especially with regards to the latter, I did not have the necessary experience to proceed swiftly with the development. For that reason, I enlisted the help of an expert app developer at Red Ninja Studios, a technology company based in Liverpool, which specialises in making games and mobile apps. Taking my own concept and design for *Together-Apart* as the blueprint for the new mobile app, the people at Red Ninja Studios were able to quickly build an iOS version for release on the App Store.

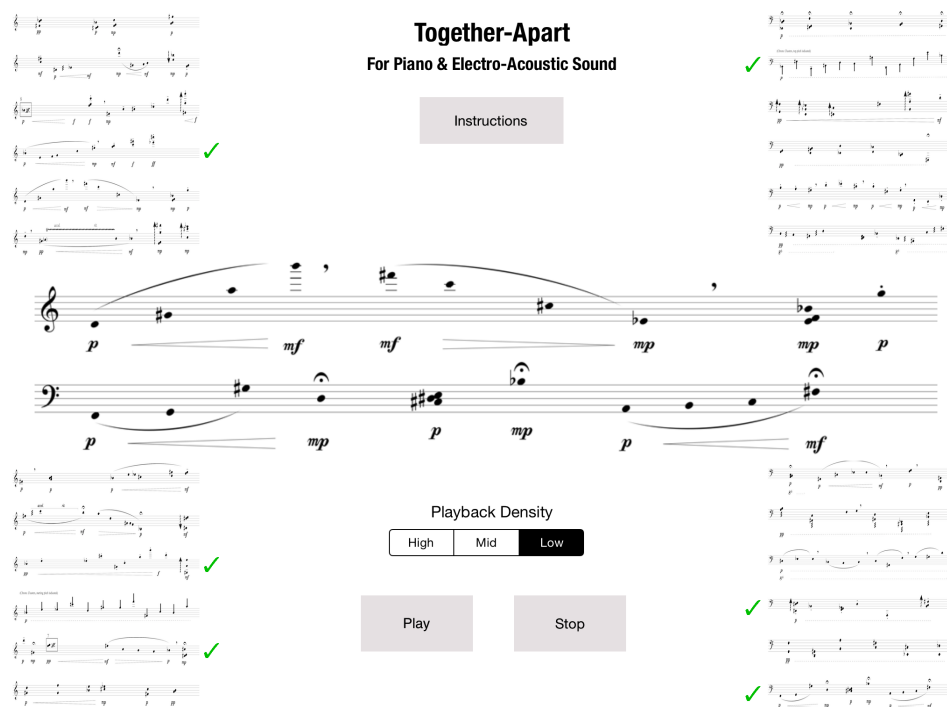


Fig. 3.5: Screenshot of the *Together-Apart* App running on an iPad. Green ticks help keep track of which fragments have already been played.

Realising how the power of mobile devices can be harnessed in the context of a musical performance, running custom electronics parts specific to individual compositions, and how they now offer a technically viable and convenient alternative to laptops, I began researching similar projects by other composers. One composer, in particular, caught my attention. His name is Hans Tutschku, and he has been working as a composition professor at Harvard University since 2004. Tutschku first used mobile devices in his 2010 work *Irrgärten* for 2 pianos and live-electronics, to play back prepared sounds, and the idea for it seemed to stem from the desire, similar to mine, to enhance accessibility to the electronics part for the performer, and thereby improve rehearsal conditions. He has employed mobile devices in several other works since then, and has given this method of working a name, calling it ‘easy electronics’. Intent on exploring the capacity of mobile devices for the provision of the electronics parts in mixed music works further, I began looking at options, other

than coding, which would allow me to be more self-sufficient in implementing custom software on such devices. I discovered a free mobile app called MobMuPlat²⁹, which allows the user to run Pure Data³⁰ patches on their smart phones and tablets. A dedicated editor programme is available to create a user interface, which provides the front end for the Pure Data patch and the mobile device hosts all files associated with the patch, including any sound files. Although the distribution of electronics parts to performers, wanting to rehearse a new work, is slightly more complex using this format than a simple App Store download, it still offers the convenience of being portable, compact and interactive.

In order to put MobMuPlat to the test, I decided to revisit *Skein* and try to implement the electronics part for an iPhone. The Resources Appendix includes two short videos demonstrating the *Together-Apart* app running on an iPad, and the *Skein* PD patch running inside the MobMuPlat app on an iPhone.

3.4 Performer Contribution

In both works, *Skein* and *Together-Apart*, the collaborative aspect between composer and performer is of much greater importance than in *Flinch*. Extending the open form ideas I had developed for the electronic parts in earlier pieces to the scores of *Skein* and *Together-Apart*, my aim was to invite the performer to make a more significant contribution to the realisation of the work, and to allow for their influence on the composition to be much stronger.

²⁹ MobMuPlat is developed and distributed by Daniel Iglesia at Iglesia Intermedia (iglesiaintermedia.com).

³⁰ Pure Data is a graphical programming environment, the core of which is written and maintained by Miller S. Puckette.

After Per had recorded *Together-Apart* I arranged an interview with him, interested to find out how he thought the piece sounded like, how he felt when playing it, whether he saw any advantages or disadvantages of particular notational constructs, and what he felt he had contributed to the work. I transcribed the interview, originally recorded on November 6th 2015, and the discussion Per and I had had about his experience playing the piece is presented in the following. I started off the interview by asking him about his first impressions of the composition:

Per: I thought it was really interesting to do this, because it is way out of my normal comfort zone to do what we did there. When I first saw the material I was trying to play literally what was there, and try to look at the [note] distances, and do the timings, but it all sounded a bit mechanical and unmusical to me. [...] I was kind of surprised when you said to me how much freedom I had to make it into a performance both in terms of what order I played it in but also that I could put varying dynamics in, I could play one hand if I wanted to, even repeat sections.

M: That was at our first meeting, right? That was *before* I finalised the performance notes, which subsequently addressed those things, like playing one fragment at a time, stretching the timing, and so on. So, with the performance notes in place it makes more sense?

Per: Yes, absolutely. I liked about it, as well, that we worked together, that you took some of my suggestions on board.

From a purely practical point of view, I really like the idea of making an improvisation, in a sense, [...] but I found it a bit problematic in terms of preparation, because I am used to notate my music, writing in fingerings, and

planning things, and [with Together-Apart] it isn't possible to write on the score with the way the app is now. Also, because there are so many [score] permutations I need a little time to reflect on [the selection], and decide how I am going to interpret it, and actually play it. For me, that process took a bit of time. In a concert situation I think it would be quite stressful for me to look at the stuff, decide how to do it, get my hands ready, and keep going through that process for 10-15 minutes.

M: *Improvisation* is quite a big term. What specifically do you think you are improvising with in Together-Apart?

Per: The interpretation of what you have written. I was trying to be faithful to the pitch and the ideas you put down. The reason I am using the term [improvisation] is because you are giving me much more freedom than I am used to.

M: So, the score I am providing you with is, in fact, quite 'strict' in terms of the material presented, and the perceived freedom is felt in the context of you being used to having everything written out completely?

Per: Yes, and I am used to re-creating, usually, while this is almost like Jazz music where you find your own way through the piece.

M: How *did* you find your way through this piece?

Per: By preparing it. In a concert situation, for lots of practical issues, I would prefer to either have it written on a paper score with my annotations, although, in principle, I like the idea of selecting fragments randomly, or find a different way of using the app. That could, for example, mean that the app itself decides which score fragments are put together, and I just press a pedal

to advance to the next combination. Also, a bigger screen would help me personally.

M: Given these practical issues, and the fair amount of practicing and rehearsing you did beforehand, how much did it actually feel like you were performing ‘in the moment’? Did it feel like it could have gone anywhere at any moment?

Per: Yes. If I had recorded it again it would have sounded completely different. It was very improvised from that point of view. You gave me a lot of freedom to form my own musical opinions. I could really do things radically different with it [...], but, at the same time, I wanted to stay faithful to your material. Combining the two was a challenge, but I really enjoyed that.

M: The formal aspect of this piece is such that you can chose score fragments in any order. How does your contribution to the work go beyond that?

Per: I felt very much part of the compositional process, and I was surprised that you gave me ‘permission’ to be so radical in my interpretation of the work. I am used to Mozart, Chopin, etc, where you try to stay very faithful to what is on the page. In *Together-Apart* my contribution is much more pronounced in terms of rhythm, tempo, dynamics, articulation, pedalling. For me, these are major things. I think if you got another pianist to play this you would still recognise it as your piece, but it wouldn’t sound anything like I was playing. However, you are setting the whole framework for this. You created the whole concept. I am playing your dots. I think, essentially, it is the same as when I play a Beethoven sonata. I bring in my interpretation within the parameters of the [given] style. It would be a lot easier to recognise

a Beethoven sonata compared to your piece, though, because the interpretation and notation in *Together-Apart* is much freer.

M: Speaking of *dots*; in terms of notation, is there anything you thought that worked well, or didn't work well?

Per: I was comfortable with what you had done. The only thing that gave me pause for thought is that sometimes there were contrary instructions with regard to dynamics, and it was a little tricky if there was one particular dynamic marking for one hand, and a different one for the other hand. Also, I used a lot of pedal to play some of it, and when it specifies *staccato* you have to interpret it a slightly different way, so, rather than short, discreet sounds, it is more to do with how I actually play the keys. Debussy uses *staccato* in a similar way. He doesn't always want a short note, but a particular touch. [...] Regarding the proportional notation, I took quite a few liberties in deciding how to play that. It had the advantage of being more flexible with the timing between left and right hand and creating sync-points.

M: For me, the openness in this piece in terms of its structure and notation forms a big part of its identity. I am still trying to work out, however, if, by granting the performer this level of freedom, I am, at the same time, undermining the composer's influence?

Per: I think this is quite a familiar problem for composers, that once they have finished the composition and give it to performers it changes. You have to accept that the piece changes its character once other people get their hands on it, and it might sound quite different in some respects to what you imagined. [...] But it doesn't change the authorship as far as I'm concerned.

M: What did you think of the electronic accompaniment?

Per: I thought it was interesting, as a backdrop, but because it wasn't tuned, and because it wasn't very intrusive, or loud, it didn't particularly change my interpretation of anything, only to the extent that while I was not playing I might delay if there was something interesting happening in the background; but not *while* I was playing.

M: And, of course, it wasn't a true interaction anyway, but more a re-action on your part to the electronic sounds. The electronic system itself didn't respond to whatever you were doing. How, would you say, did the score and the electronic part work together?

Per: I think, essentially, there were two uncoordinated things happening at the same time, and it added to the richness of the piece, but the electronic backdrop didn't particularly inform my interpretation, other than when something dramatic was happening with the sound, in which case I would give it some space.

The last point Per makes is an important one, and it supports my original concept for the piece as something that explores *duality*, rather than *interactivity*; the duality of *pitch - noise* (score - electronic sounds), *fluency - rigidity*, *man - machine*. My bias, in the end, is towards the human player as the one who stands out, as the one who is expressive in the moment, and this comes out of the score material. The section between 4.30 and 7 minutes in the recording of *Together-Apart*³¹ is a good example of this. Per plays quite animatedly, with purpose, and with considerable dynamic range, while the electronic accompaniment provides a noisy backdrop with sounds ranging

³¹ See Resources Appendix

from a quiet mechanical rattle to a slightly more persistent and unnerving racket. At times, he leaves deliberate and pronounced gaps between score fragments (up to 10 seconds), allowing the electronic sounds to fill out the acoustic space. Ultimately, it is the piano part, however, that assumes prominence, because of Per's delivery.

Per talks about 'permission', the feeling that he was granted considerable freedom in interpreting the score material, but, of course, this has to be considered in the context of his classical background. When writing the score for *Together-Apart*, and, indeed, all of the other instrumental pieces in the portfolio, I was primarily composing with trained musicians in mind, players who would not necessarily have a lot of experience in free improvisation. Consequently, for all their structural openness, my scores still offer notational detail, which gives especially the classical performer something to hold on to, while they are negotiating the various aspects of open form and free tempo. Due to Per's preparation prior to the recording of *Together-Apart* his performance is highly animated and full of intention. A good amount of preparation is needed ahead of performing this work, without a doubt, in particular with regards to the way in which the left and the right hand are treated independently in the score. This poses a clear challenge to the player, and creates a complex performance situation, which may not be fully conducive to making structural decisions 'in the moment'. Instead, the player may be inclined to arrange certain score combinations ahead of performance, and generally leave the order of combinations and the timing between those flexible. Thus, the performer's judgement, and therefore aesthetic contribution, extends outside the performance scenario and already manifests itself during a prolonged preparatory phase.

4. *Closer* – for violin, cello and electronic sound; 39 – for 10-piece ensemble and electronic sound

4.1 A particular type of Open Form

As my research into open form practice broadened, I was bound to encounter the work of one specific composer, and that composer was Earle Brown. Brown was very influential on my own compositions at a point when I was looking for new ways to progress from my recent open form works (*Skein* and *Together-Apart*). One of Brown's pieces, in particular, called *Times Five* for five instruments and four-channel tape (1963) had a big impact on my evolving notion of open form, specifically, how a composer could retain greater control of the overall dimensions of a piece, while still involving the performer in the decision making process. *Times Five* is composed in five sections, each lasting for several minutes, and all of them are to be performed in chronological order. However, within sections 3 and 4, the instrumental parts are comprised of shorter fragments, which can be ordered and combined freely, thus creating varying textures and densities during the performance. Sections 1 and 2 are 'open' primarily in terms of timing as expressed through the use of proportional notation. The tape part is completely fixed, and in the accompanying performance notes Brown describes it as an "unchanging ground upon which the live material is superimposed"³². A conductor is needed to cue the different instrumental sections, and have these coincide with the corresponding sections of the tape part. It is also the conductor, who decides how the instrumental fragments should be combined in sections 3, 4 and 5, and then communicates these combinations to the performers by hand. When comparing *Times Five* to *Klavierstück XI* (as a point of reference for my

³² Earle Brown, 1963, p. 1

previous interest), or my own *Together-Apart* (itself a response to Stockhausen's piece), the differences in approach to structural design become apparent. All three pieces are open form compositions, yet they differ profoundly with regards to their trajectory in time. Both *Klavierstück XI* and *Together-Apart* belong to the *multi-valent* type of open form, while, as I see it, *Times Five* by Earle Brown falls into the *variable form* category, as the composer sets the overall direction of the piece. Having composed *Skein* and *Together-Apart* basing both on very similar structural concepts, my aim was to exact more directional control in my next work.

4.2 Maintaining a 'macro' view

The scores for both *Closer* and *39* are organized in such a way that the performance is steered in a predetermined direction. Similar to Brown's *Times Five*, both pieces consist of several timed sections arranged into a fixed order. Within these sections, however, the musical fragments are subject to ad hoc re-ordering and repetition as decided by the performer. The electronic accompaniment in both compositions includes instrumental sounds matching those of the live parts, and the playback of these samples follows the sectional design of the score, while leaving the local sequencing indiscriminate. In *Closer*, the choice of pitch material for each section supports the overarching sense of progression. Again, I made use of the wedge shape series first employed in *Skein*, this time, however, dividing it systematically between the violin and the cello, thus providing each instrument with its own 6-note tone row. I chose the retrograde version of the original *Skein* series, and figure 4.1 shows how I separated the constituent pitches for the two instrumental parts producing an intervallic progression from wide to narrow.

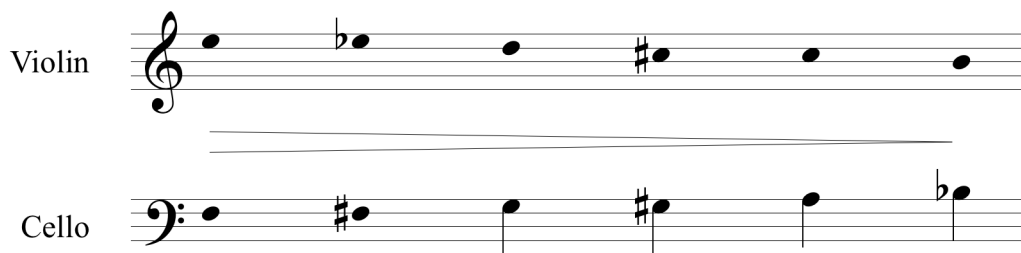


Fig. 4.1: The two series for violin and cello; both halves of the chromatic scale.

Thus, the concept of overall structural directionality, as expressed through ordered sections, is mirrored by the serial development of pitches between instruments. Not only do the two instruments follow the order of their own tone row, but, in doing so, they concurrently move towards a specific position where the interval between them has been reduced to a semitone (Bb, B), completing the mutual approach. In each of the six sections in *Closer* the focus is on one of the six pitches of the series, respective for each instrument. These individual pitches function as ‘beacons’ across the entire piece outlining the fundamental direction taken, with additional pitch and noise material serving as local embellishments. This is quite similar to the way I composed the score for *Skein*, the difference being that the little fragments in *Closer* are less fully articulated musical phrases, but more instrumental ‘activities’, which constitute an altogether ‘noisier’ (i.e. non-pitched) sound world.

The pitch material for 39 was developed, again, with direct reference to the title of the composition, however, it does not support the work’s sense of direction to the same degree as in *Closer*. Still, in 39 I also worked with timed sections, which follow a specific order, and the increased ensemble size (10 players) allowed me to explore different instrumental combinations for different segments. Thus, I was able to shape

a global arrangement with varying instrumental densities in predetermined constellations, while, once more, involving the performers in the local decision-making. As is the case with *Closer*, in the score for 39 I made use of proportional notation, adding durational indeterminacy to the open-order aspect of the short fragments. Unlike *Closer*, however, the pitch distribution in 39 tends towards the chromatically balanced when regarding it on a per section basis, meaning that there is a quicker ‘turnaround’ of all 12 pitches. I divided the chromatic scale into four three-note mini-series³³ (see figure 4.2), and these were generally circulated across the instrumental parts with the aforementioned sectional 12-tone balance in mind. This could manifest itself in a combinatorial manner, as in sections 2 and 3, where all four available series are present, however, with only one tone row (i.e. three pitches) per instrument (or per two instruments, as in the cello and bass parts in section 2), or in a way where all four series can be found in every single instrumental part, as, for example, in sections 4 and 5. Of course, due to the open form nature of the piece there is less of a combinatorial effect in the latter two sections, as the same pitch class may occur in close proximity between instruments, possibly even sounding simultaneously, depending on how the performers choose to order the fragments.



Fig. 4.2: The four mini-series used for the melodic material in 39.

For the most part, I used the original and retrograde versions of each tone row, although local deviations do occur where I decided to change a particular note order

³³ Starting with C, counting up 3 (D) and 9 (G#) steps respectively yielded the 1st series (C, D, G#). Beginning with C# on the 2nd count (3 and 9 steps) produced a 2nd 3-note tone row. The remaining 2 series were devised in a similar manner.

to suit the desired melodic flow. The third fragment in the flute part in section 4 is one such example. Here, the order of the original series (F, G, Bb) was modified to accommodate a descending melodic line, having the F and G swap positions. I took similar liberties for several other segments in the score, making sure I remained satisfied with the approximately equal rotation of all 12 pitches.

4.3 Devising a cueing system

The electronic parts for both *Closer* and *39* express the same concept of *variable form* as that applied to the instrumental parts. They consist of recordings I made of myself playing a selection of string and percussion instruments producing similar sounds to the ones found in the scored fragments. I created audio samples of variable length and organised them into different groups in order to support the sectional arrangement of the piece. For each section there is a matched selection of sound files, the playback order of which has been kept *variable*, much like their instrumental counterparts.



Fig. 4.3: Max patch for *Closer* in Presentation Mode. At this point, there are 58 seconds remaining in section 3.

Furthermore, the same Max patch that is responsible for the sample playback according to the timed sections, is also acting as a real-time cueing system telling the performer when to move on to the next part. Effectively, this eliminates the need for a conductor as the person who keeps track of the timing during a performance, as is the case in Earle Brown's *Times Five* (and several other works of his). Of course, with regards to *Times Five*, the conductor plays a further role, which goes beyond simple time keeping, and that is to choose combinations of different score fragments for different sections, thereby taking responsibility for the unfolding texture instruments. In both *Closer* and *39* this responsibility has been transferred to the performer who will decide, section-by-section, in which order to play the available fragments and, time permitting, whether or not to repeat any. This way, the performer is required to listen much more attentively not only to the other players, responding to their choice of material, but also to the variable sound accompaniment that will provide 'sonic cues' to which the musicians may react to individually. As a result, sonic textures, and, indeed, harmonic constellations, form spontaneously, with the interaction between performer and electronic accompaniment taking place in the moment, leading to unpredicted sound assemblages, albeit with predetermined textural characteristics.

The samples used in the electronic parts for both *Closer* and *39* were left largely unprocessed. My intention was to blend the prepared sound files with the live instruments in a way that would blur the lines between the sound sources (i.e. live instruments and electronics), to the point where the listener would not necessarily be able to tell the point of origin for individual sounds, i.e. performer or computer. To aid the effectiveness of the sonic blend, the technical setup for both pieces specifies

that small powered speakers should be used for sound projection, and that those speakers should be placed in close proximity to the ensemble, on the floor, possibly even amongst the players (certainly for 39). In the case of a live performance this would help create a setting where the electronic sounds emanate from within the ensemble itself, suggesting these sounds might be the result of players' instrumental activities rather than of computer assisted sample playback. Furthermore, embedding the speakers within the ensemble during a live performance would address the possible issue of a clear physical and visual separation between players and electronics (i.e. speakers). This is a sight not uncommon in performances of mixed music works, and it may, on occasion, prevent a proper integration of the two, not just in terms of acoustics, but also regarding an 'equal status' within the work (i.e. performers: centre stage, electronics/speakers: either side of performers, off-centre).

- 5. *Hope Street* – for four instruments and soundscape;
I Can Feel His Mouth – for female voice, piano and electronic sound;
Hidden Within – for cello and electronic sound**

5.1 Beyond the “Open”

Having only recently introduced more controlled elements into my compositions by adopting the *variable form* concept (*Closer*, 39), I decided to answer’s Aarhus Unge Tonekunstnere’s (AUT, Denmark) 2014 Open Call, [OpenScores], and effectively change course slightly, pushing my idea of open form towards the notion of (a more radical) musical indeterminacy. The open call stated the

[...] wish to contribute to the further development of an exiting field by inviting composers and artists to create new works that push the boundaries of what the musical score can be.

The instrumentation had been left unspecified, with only the number of performers set, i.e. four, allowing for the unrestrained exploration of graphic notation. With my newly emerging interest in Earle Brown’s music still informing a large part of my ongoing research into open forms, I was, of course, familiar with his famous graphic notation work *December 1952*, a collection of 31 vertical and horizontal lines of varying length and thickness, all arranged on a single page, with no specific instructions as to the way these shapes should be performed. Inspired to give my new score a similarly elegant appearance, yet intent on retaining directional control overall, and managing basic aspects of timing and pitch, I remembered one of Morton Feldman’s ‘graph’ compositions called *Projection II* (1951) for flute, trumpet, piano,

violin and cello. In this work, Feldman uses boxes of different shapes, whose horizontal and vertical placement on a custom ‘stave’ gives basic (and persistently vague) indications relating to the performance of the musical material with regards to register (pitch), simultaneities (chords) and timing. Blending these two concepts I produced a score which would at once represent my most extreme attempt at performer involvement in the decision making process when realising the musical work (here extended to matters of pitch and harmony), as well as my continuing concern with controlling the overall shape and direction of the composition, as expressed in my recent pieces.

The title *Hope Street* is taken from a well-known place in Liverpool, and, as was the case in several of my other compositions, it directly informed the musical content of the work. As a location, Hope Street, and its immediate neighbourhood, can be represented graphically in form of a street map, and I imagined that this would offer a fitting starting point for my graphic score. I decided to devise custom staves, similar in conception to the ones Morton Feldman had employed in his early *Projection* pieces, that would allow me to work with broad divisions of instrumental register within which pitches were left unspecified, while still accommodating general melodic contour. In *Hope Street*, each of the four instruments has its own stave, each stave is divided into three equal registers (low, mid, high), and each player is asked to appropriate those for their own instrument. The way I went about deriving actual musical events for the graphic score from ‘Hope Street’ as an urban space was to take a snapshot of the street (and the surrounding area) on Google Maps, and then set that image as a background layer behind my custom staves (see figure 5.1). I proceeded to trace various elements of the map, such as street names, street outlines, etc, using

lines, note heads and other symbols of varying size and width. The same Google Map image was used throughout the entire score, progressively more ‘shared’ between instruments as the piece went on. For example, on page 1 each instrument has its own instance of the snapshot, albeit in a version that is distinct from the others, as a result of using four different rotations.



Fig 5.1: *Hope Street*, page 3 of the ‘composing score’, showing the Google Maps backdrop.

Consequently, when reading the score from left to right, each player is setting off on their own ‘musical walk’ through the area of Hope Street, proceeding from four different cardinal directions. On page 2, however, the same rotation is shared between two instruments (the image is stretched across two adjacent staves), meaning that two groups of two instruments are moving towards each other from opposite directions, while, on page 3, there is just one instance of the map image which is stretched across all four staves (see figure 5.1). By employing various degrees of

stretch when using the Google image the details on the map changed (i.e. expanded), and thus presented an altered landscape, which, in turn, yielded new events to be traced with various symbols, as discussed above.

In order to further support the realisation of this composition, as one to ‘express’ a specific urban space, I made the decision to add to the instrumental parts a field recording of the actual place (Hope Street). This electroacoustic part is implemented in two ways: firstly, a four-channel version exists which has the four speakers set up so that they surround the audience and place the listener ‘inside’ the city space; the second is a stereo version which is played back through two small active speakers placed amongst the ensemble, following the same concept of ‘physical integration’ already explored in my two previous works (*Closer*, 39). I programmed a Max patch for the playback of the environmental sound, as well as for providing information about timing, i.e. current page and time elapsed, thus creating a performance situation, in which the performer does not rely on a conductor, but is presented with an electronic cueing system (as already discussed in Chapter 4) to keep all players ‘in sync’.

5.2 Time to readjust

When the opportunity arose to contribute musically to the *Ulysses* Project, organized within the English department at the University of Liverpool, and, essentially, celebrating and re-appraising James Joyce’s 1922 modernist novel of the same name³⁴, I saw it as a chance to return to a mode of composition, in which I could reclaim control over the musical material written (especially relating to pitch), having

³⁴ (itself a reference to Homer’s *Odyssey*)

just pushed myself into the direction of greater indeterminacy with *Hope Street*. Furthermore, setting some of Joyce's text to music would allow me to compose my first work for voice. I was still keen to make use of proportional notation in the score, not only to retain the temporal flexibility of my previous piece, but also because I imagined it would fit perfectly with Joyce's famous stream-of-consciousness technique, which lacks any form of punctuation, and which he employs in the final episode of the book. Thus, it was the final episode that I turned to for the lyrical content of my piece. (The actual selection of text I used for this composition was made by a colleague in the English department after I had asked him to put together a choice of paragraphs.) Here, Molly Bloom, one of the central protagonists in the book, recalls past lovers and admirers of hers while lying in bed next to her husband. Joyce loosely based Molly's character on that of Penelope in *Odyssey*, Odysseus' faithful wife, who resolutely denies her suitors during her husband's absence. Molly's character, however, seemed to have a darker quality to it, and it was this discrepancy which I sought out to explore musically. In *I Can Feel His Mouth* I used the female voice part to articulate Molly's thoughts, passionate, emotionally charged, while having the piano part represent the more 'morally secure' disposition of Penelope. In order to express the latter, I conceived a 'symmetrically stable' chord (the *Penelope chord*) for the piano part (see figure 5.2), which would function as the underlying stillness, steady, and almost predictable in its nature, atop of which the more expressive vocal line could freely unfold. In order to create textural variation, the piano chord was used in many different inversions and with shifting octave placement of pitches, producing a sense of slow movement, albeit one without any harmonic functionality. It was important to me that the voice part would not develop completely independently from the piano part, but that there would be points of

convergence throughout the piece with both elements synchronizing, thus conveying the parallels of their literary counterparts (i.e. Molly and Penelope). In the score I used dotted vertical lines in order to coordinate points of common departure (after which each player would follow their own sense of timing) and various musical material, which was intended to be played ‘together’.



Fig. 5.2: the ‘Penelope chord’, a “symmetrically stable” internal tritone interval between D and G# (halfway point in the octave) with an added semitone on either side.

I took the idea for the vertical lines from Morton Feldman’s *De Kooning* (1963) in which he uses them to sequence the note order between instruments within a non-metrical context, and also to designate simultaneities of different instrumental parts. In *I Can Feel His Mouth*, the vertical lines were employed primarily to re-synchronise the two performers after having both follow their own internal tempo within the eight 1-minute sections. Returning to the subject of how I organized the pitch material in this composition, the part of the female voice uses the remaining eight pitches from the chromatic scale (I had already used four pitches for the *Penelope chord*, C#, D, G# and A). To that extent, I created a combinatorial environment, in which both instrumental parts use mutually exclusive pitch material, the idea being that this is expressing the seeming moral divide between the two literary characters. As the piece continues, however, both voice and piano begin to absorb pitches from each other’s sets leading to the emergence of shared material, first occurring at the beginning of section 5, where a C is introduced into the piano part. Similar to the way I had worked out a method of synchronising the two instrumental parts in time

through the use of vertical lines, this development pitch cross-over was intended to ‘synchronise’ the two musical parts, that is to reveal (metaphorically) glimpses of a shared personality between Molly and Penelope.

Unlike in my previous two compositions *Closer* and *39*, there is no overt open form aspect in *I Can Feel His Mouth*; instead, the main focus is on the ‘elastic’ nature of the rhythm (as implied by the use of proportional notation), which, ultimately, serves the same purpose, namely that of greater freedom for the musician in making decisions relating to the performance. In the end, it also facilitates my continued desire to not have two performances of the same piece sound exactly alike, and to put myself in the position where I want to be surprised by what the performer has to contribute to the realisation of the composition.

5.3 Ongoing investigations

Towards the end of my PhD studies the opportunity arose to write a piece for cello and have it recorded by visiting cellist Hilary Browning from the Royal Liverpool Philharmonic Orchestra. Gladly, I took up the offer to present a short piece for this occasion and build on the open form concepts I had developed for earlier works and explore them in new combinations. As part of my continuing interest in open form composition, *Hidden Within* for cello and electronic sound blends various ideas from some of my previous compositions. It combines the *multi-valent* aspect of *Skein* and *Together-Apart* with the proportional notation I first introduced in *Closer*, as well as elements of graphical notation, which I first used in *Hope Street*. Also, as already done when composing *Flinch*, I used computer software to generate pitch material, based on the audio analysis of samples I recorded myself.

In preparing *Hidden Within* I discovered a collection of unused viol samples, originally recorded for the electronic part of *Closer*. I decided to make those the starting point for the cello score, and to also have them provide the electronic accompaniment, thus extending the sound world of the cello with that of another related stringed instrument. I used Melodyne³⁵ to explore a variety of viol samples and managed to extract pitch information from the various sounds contained in them. By grouping together successive pitches into short sequences of notes, and ‘translating’ the different sized gaps between these notes into proportional notation, I was able to create musical phrases of relatively short durations, which, in turn, produced a selection of score fragments.

³⁵ A software application for the analyses of pitch and timing in audio files (www.celemony.com)

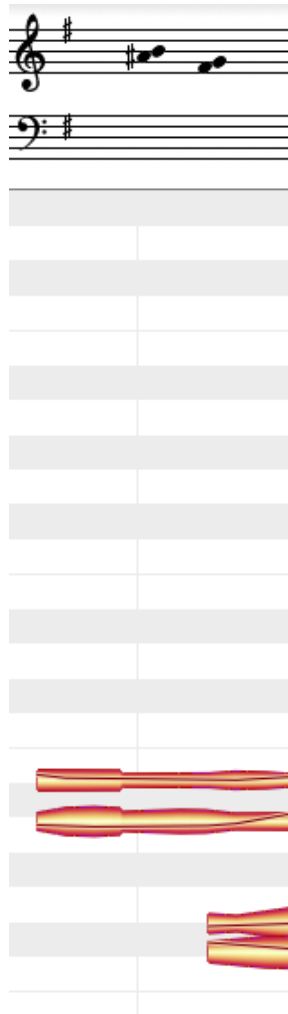


Fig. 5.3: Partial view of a viol sample inside Melodyne; the waveforms at the bottom represent the different notes contained in the audio sample, their relative amplitudes and placement in time. Even with “non-musical” samples, like the noisy sounds I recorded on the viol, the software is quite good at detecting fundamental tones, which can then be displayed as musical notation (see top of the screenshot).

Unlike *Flinch*, for which the pitch material had been generated using algorithms in Logic Pro, the musical notes for *Hidden Within* were already contained within the original viol samples themselves. They were merely revealed by Melodyne through audio analysis. Similar to *Flinch*, however, I made sure that the note combinations I chose for *Hidden Within* were not of any particular tonal reference, and that all twelve notes of the chromatic scale were present in the score. There is, nevertheless, a clear bias towards the two pitch classes of F# and G in this piece, which is a result of their frequent occurrence in the analysed audio files. In order to provoke noisy, rough,

tumultuous sounds from the cellist during performance, I added a number of graphical elements to the musical score. I created these by slightly modifying a screenshot of a Melodyne ‘note waveform’ selection (representing one of my viol samples) and superimposing it onto the cello part in Sibelius. My intention was to have these “extended” sounds blend with the electronic part, with the intention that the listener would find themselves in a curious situation where it is not easy to distinguish between live performer and computer as the musical source.³⁶

The electronic accompaniment was implemented using Max and is a fairly straightforward affair. Prepared sounds³⁷ of varying dynamics and texture are selected randomly from a sizeable collection of samples. These are distributed across three audio buffers and, depending on the samples chosen, the overlapping of various sounds will produce textures of shifting densities. As with my previous mixed music compositions, the electronic part is produced to also act as a sonic ‘springboard’ for the performer, allowing him/her to draw inspiration for their own instrumental activities from it, even if that means just to echo the sounds that are being played back from the computer.

5.4 Performer Contribution

As I had done with Per, I staged another interview, this time with Hilary, in which I asked her to talk about her experience recording *Hidden Within*. I was particularly interested in her view on what her contribution was to the piece, given that the graphical elements in this score are much stronger than in *Together-Apart*, allowing

³⁶ I first got interested in these ‘confusion tactics’ when composing *Closer*.

³⁷ A recording of myself creating sounds on a viol, subsequently edited into short samples (5-10 seconds long) of generally inconspicuous character.

for a much freer interpretation by the performer. In the following transcript of the interview, recorded on November 22nd 2015, Hilary discusses the key points relating to her performance:

M: Regarding the graphical aspects of the notation in *Hidden Within*, the ‘blobs’ are used in conjunction with the electronic sounds played back by the computer, aiming to provoke a reaction from the performer when listening to these sound files. Did that work for you?

Hilary: Yes, that was easy, once I was playing along with the sound files, to bounce off that, and to use those as a guideline. The pitched notation is fairly clear, what to do there; you have got the notes, the pitch and the duration. That is much more standard. The graphic parts, however, were very free.

M: Did you, therefore, latch on the electronic sounds much more, maybe imitate them, considering the ‘blobs’ don’t immediately suggest any concrete ideas relating to timbre or technique?

Hilary: I remember you specifically saying that sometimes you can do that, and sometimes you don’t. Certainly, a very important part of it was listening to what was going on. I would decide which score fragment to do *just prior* to playing it, and then I might hear something similar in the electronic part, at which point I might incorporate that in what I was playing. The electronic sounds were very delicate, and the graphic notation suggested that subtlety for the instrumental part as well. You would get a totally different performance with a different player, of course, and a performer who did not know much contemporary music might be freaked out by it.

M: Have you got much experience with performing contemporary music, similar to *Hidden Within*, using graphic notation?

Hilary: Yes. However, I have never seen anything like this before, where you really can be *that* free.

M: How did that feel?

Hilary: I liked it. It was good, because it meant you did not have technical limitations. Your own technical limitations were not going to stop you, and you were not constrained to play something specific. You could decide, ok, I know what I can do, I know how I can play, and so, I am just going to play the way I like to play. I don't have to play anything that is really difficult, or really awkward, like somebody has written an awkward interval, or a particularly horrible shift I worry about whether I am going to miss it. In this piece it was all about just how *I* feel in the moment.

M: So, a sense of feeling liberated? What does that mean in terms of your contribution to this work?

Hilary: I think I do have a contribution, each individual player has. But that does not mean that it is my piece, because I have not decided to sit down and play it, or record it, or write it. You have, and you have given certain guidelines. I am thinking about this in terms of, perhaps, conceptual art, when you go in and you see something, and it takes you a while to think about how to react to it, what does it mean, what is it trying to say. So, in those ways could say it was like conceptual music, if that does not sound too pretentious. You have given me some suggestions and have said, what are you going to do with that? Interactive conceptual music, if you like. Of course, my technique

and the way I play is going to contribute to the end result, but I do not think it makes it *my* piece.

M: I would think that you contribute much more in a piece like *Hidden Within* than, let's say, a work by Prokofiev. Is that fair to say? *More*, or just *differently*?

Hilary: That is very interesting. I think, probably, differently. With a Prokofiev composition you try to absolutely achieve what is on the page. Everything is prescribed, and the conductor, of course, will tell you the mood. I will be within a very strict frame when playing music like that. In *Hidden Within* there is not such a strict frame and I found that to be a pleasing experience. It was not so demanding. I could decide how demanding I wanted it to be. There is no tempo in this piece. You are totally free to do whatever you want to tempo-wise. It is all about mood and timbre and that kind of thing. My contribution goes beyond the mere technical aspect, my technique, towards giving the work a character. People say about the orchestra, it must be wonderful to do such a creative job, and I think to myself, well, actually, it is not creative at all. We have to do exactly what we are told to do, and that is the difficult thing. We are working towards everybody playing in the same way, and that is a constraint. A lot of pressure. Your piece is the absolute antithesis of that. You are given *some* parameters, but the freedom to be creative and expressive in your own time is much more pronounced. It is about *permission*, if you like.

M: Listening to the two versions we recorded, they do sound quite similar.

Hilary: That is because you have certain boundaries, and the electronic sounds are fixed.

M: That's right. I was quite deliberate in setting boundaries that would yield similar outcomes for different performances. That is true for all of the compositions in my portfolio, in fact. I think that is a result of me setting out to write predominantly for classically trained musicians like yourself, and Per, who performed one of my piano pieces; players, who do not primarily work in the field of free improvisation or experimental music, and who might appreciate certain freedoms while still being able to rely on more familiar aspects within the scores, such as the notation of pitch, duration and dynamics. An attempt at bridging two worlds, if you like.

Hilary: I think, in this piece, there is quite a lot of detail in the more traditionally scored fragments, and it is the graphic sections that let you be free. It is easy to play, which is a good thing from the player's point of view, because you are free to go where you like with it. I have not done free improvisation, but I would not be surprised if you got a better performance if people felt totally free to do what they want.

M: I think, in the first instance, I was not concerned with getting a good or a bad performance as such. It was really about working with the performer and seeing what they would make of it. That was the motivation behind writing a piece like this, and maybe that is the *conceptual* part of it, whereby the end result is important, I still want it to sound ok, but the emphasis is more on the *process* of working together as composer and performer.

Hilary: And it was vital that you were there. You definitely need some guidelines, and you have those in the written notes as well. And, of course, when the sound files were playing I could see where we were with this.

M: Did you feel, at any point in this piece, that you had to play it in a way that Michael will like it?

Hilary: Of course, I wanted you to like it, but with the electronic sounds there I could hear what you had done, and it gave me an idea about the sort of thing you like. So, of course, I would be trying to copy that, or, bounce off it. The ‘blobs’ in the graphic notation are quite beautiful. They are not sort of ugly. Had you written much more ugly ‘blobs’, a lot more ink, I would have played much more sharply.

M: Interesting. I had not thought about it in those terms. But, looking at the score, the thing that *is* noticeably more upfront and powerful is the notation for the pitched fragments, of course. They are kept in deep black. The ‘blobs’, on the other hand, use a lighter shade of grey, and kind of move into the background, as do the electronic sounds, in fact, which do not sound too dramatic, but are, actually, quite delicate. I am giving priority to the pitched material, and everything else is almost a backdrop to that.

Hilary: I think so. I think the ‘blobs’ on their own would not have been enough. I might do a little phrase of the pitched notation, and out of that phrase might come an idea to take it to the next written phrase. The ‘blobs’ in-between helped me to extend that idea a bit, or do something contrasting, and then find myself on the next phrase, naturally. That is how I did it.

M: Was your choice of which score fragment to play next, made *in the moment*, randomly, or did you have a look at it prior?

Hilary: I looked at it a couple of times, but it was not really necessary. It was not so difficult. I thought to myself, if I practice this too much beforehand, I take away the ownership of it from you in a way, because then I had already

decided in advance what I am going to do, especially with regards to the graphic notation. I thought it is much better not to do that. I think it is something that should be done in the moment.

M: So, the piece could have gone anywhere at any moment?

Hilary: Yes. However, I think there was a timbre-parameter, if you like, given not only by the electronic sounds, but also by the score. You generally haven't got a dynamic above *mezzo-piano*, apart from one *mezzo-forte*, for example, so it was gentle, it was wispy, it was scratchy with little sounds. It was not abrasive, it was not harsh, and that was also something, which was quite nice. I felt reassured by you being there and saying 'this is fine', 'this is what I am looking for', otherwise I might have thought, well, 'is this what he wants'?

M: I kept the notation very simple, very minimal. I was hoping that a certain complexity would come out of the 'openness' of it, out of the circumstance that the performer would be feeling freer. Did that work for you?

Hilary: I think so. In fact, it allowed for more complexity compared to a situation where a lot of detail has been fixed, and a lot of things happen, let's say, in a bar, and you are thinking 'oh, please, give me a break'. In *Hidden Within*, you are not constrained to do this specific thing at a specific time. You just do it by instinct, and by feel, and by the moment, and it feels more musical. From my point of view I would much rather do that than get a whole list of things that are really difficult to achieve. Certainly, as a contrast to what I usually do, there is a place for it, and I enjoyed recording it.

Hilary, just like Per, is a classically trained musician, and, as such, she is used to playing off fully notated scores. As with previous pieces, in *Hidden Within* I added notational detail relating to pitch, dynamics and duration to the musical material. The difficulty and complexity is, however, much less demanding when compared to *Together-Apart*, in particular. As a consequence, during the performance Hilary was much more able to make structural decisions in the moment, without much preparation needed in advance. Her performance of *Hidden Within* sounds less rehearsed than Per's performance of *Together-Apart*, and a real sense of spontaneity can be detected. This is also due, in no small part, to the way the graphic elements in the score were conceived, with greater indeterminacy regarding their execution, allowing for a much more immediate reaction on the part of the player to the electronic sounds, which themselves, as Hilary pointed out, served as a good sonic paradigm for her own actions. Throughout the recording of *Hidden Within* (Version 2)³⁸ there are moments during which Hilary is clearly responding to some of the electronic sounds by imitating them. Already at 40 seconds into the recording Hilary is answering a *col legno battuto* heard in the electronic accompaniment two seconds earlier with her own version of it, and elsewhere she can be heard joining in with percussive loops, *glissandi* on the strings, and general moments of repose.

In *Hidden Within* the integration of the instrumental and the electronic sounds is achieved by using graphic notation in the score in combination with the verbal instructions found in the performance note, calling for more 'noisy' (non-pitched) textures to be produced by the player. In this context, the open form aspect has

³⁸ See Resources Appendix

enhanced Hilary's performance experience, allowing her to spontaneously react to the electronic sounds and tune in to feel they provided.

Conclusion

Looking at the list of compositions I have completed for my PhD portfolio, now that I can afford some distance and take a retrospective view, I believe there are two main points that have crystallised from my research into various open form techniques. Firstly, while my desire to include the performer in the structural decision making process, as to how the musical work may be realized during a performance, has become more and more pronounced since my composing of *Skein* (see Chapter Three). It is also clear that I have concurrently developed a strong sense of control over the general direction within a work. Introducing the *variable form* concept into my compositions (see *Closer* and 39) has allowed me to concentrate my open form ‘metabolism’ within timed sections, usually no longer than one minute, which themselves represent only one part in a larger, predetermined sequence of sections. My intention to use open form as a way to bring about a more collaborative performance scenario, granting the performer interpretative freedom, and even reducing the need for a conductor, has nonetheless left me wishing to address the question of composer authorship in such works. Through the introduction of clear structural features into my compositions, let me call it ‘sectional morphology’, especially since *Closer* (see Chapter Four), I have put myself, the composer, in a position where I can comfortably claim to be the creative source of origin for these works.

Secondly, when comparing *Flinx* to *I Can Feel His Mouth* it is evident that my preoccupation with rhythmic complexity in the instrumental parts has persisted throughout the portfolio, except, the way I arrive at it now has changed with my

recent paradigmatic shift in musical notation, from the meticulous rhythmic detail in *Flinx* to the relative freedom of proportional notation in *I Can Feel His Mouth*. In both cases, a clear musical pulse has been suspended, a characteristic, which fascinated me about contemporary music in the first place (e.g. Anton Webern); however, the rhythmic complexity in *I Can Feel His Mouth* (and before then in *Together-Apart*, *Closer* and *39*) is the result of allowing these intricate rhythmic structures to form spontaneously during performance, rather than an exertion of total rhythmic organisation (by the composer) during the writing stages. Of course, the use of proportional notation aids considerably the production of this inbuilt flexibility, and the fact that its use is integral to the composition itself, being an important part of its conception, means that the rhythmic intricacies have been intentionally ‘facilitated’ by the composer (i.e. myself), and are not just some accidental side-effect. In order to express my fascination with the ‘asynchronous’ nature of (a lot of) contemporary music through my own works, I have been developing a set of ideas that have come out of my research into open form techniques, which enable me to combine my interest in listening to and composing rhythmically complex music with the excitement I get out of musical collaboration, especially in a performance context.

Considering that all of my compositions in the portfolio, except one (i.e. *Distant Cousins*), are mixed works, I would like to think that through my specific use of open form techniques, especially with the integration of a software driven dynamic playback system for the electronic part, also acting as an electronic cueing system, I have contributed my part to this particular type of composition. I would think, of course, that Earle Brown was the first composer to seriously explore open form aspects within a mixed music setting in his 1963 work *Times Five*, however, at that

point in time, magnetic tape did not afford the same flexibility that a modern computer does today. Therefore, the electronic part in *Times Five* is fixed, and not mirroring the *variable form* of the instrumental parts. Employing modern technology I have been able to bring Brown's concept up to date and apply the same formal considerations to the electronic part as well.

With regards to my main motivation for using open form techniques in my own compositions, namely that the performer takes an active part in the realization of the work by being free to make structural choices, and, at the same time, be ready to react spontaneously to the musical activities of the other players (or, indeed, the electronic part), I am very pleased with the general response I have been given by the performers who have been involved in the different performances of my works. One quote by Charles Gibbon, who played the cello part for the recording of *Closer*, illustrates this quite well. In an email reply he writes:

I tried to respond to both the electronic sounds and Emily when deciding which sections to play and how to play this. This typically involved echoing or mimicking the electronic track (pizzicato for pizzicato for example) aiming to create an echo effect. When playing with Emily (violinist) I would aim to match or contrast her playing ("glissing" in the opposite direction or matching her tremolo intensity in places). I also aimed to make sounds, which were distinct and so at times I would listen for sounds, which were not being made yet, and then chose to play a section, which could fill the gap so to speak.

(In an email conversation with the author from 8th July 2014)

Other performers have made similar comments regarding the performance of my works, saying they felt indeed ‘liberated’ and excited to be able to make individual musical choices, and that they were listening carefully to the musical material chosen by their fellow performers, and, indeed, the electronic sounds which were being played back at the same time, in an attempt to react in a complementary way. For example, when it came to making a recording of *Hidden Within* at the University of Liverpool’s School of Music on June 17th 2015 with Hilary Browning³⁹, I believe this concept of performer-computer reaction/blending translated particularly well into praxis. Afterwards, Hilary provided me with some really useful feedback regarding her experience playing my piece, and shared her views on the state of authorship in open form works such as this. I would like to quote Hilary from a short interview we conducted after the recording session, as I consider her response to be an endorsement of the main open form concepts I have been exploring in my PhD portfolio:

[...] From a performer’s point of view the blobs look intimidating at first, but once you get to understand what they mean you can be quite free, they are quite liberating, and once I got together with the already prepared electronic sounds playing back from a laptop, it was interesting to get inspired to copy, or maybe contrast them [...]
It was very enlivening. It gave you the chance to just do what you want to do and not worry too much. It definitely was a positive and very interesting piece to play [...]

[...] If I had a blank piece of paper put in front of me I wouldn’t know where to start. I definitely think this was Michael’s piece. He gave me clear guidelines, specific notes, but within that, the opportunity to just be free, and to respond visually to what

³⁹ Hilary is associate principle cellist at the Royal Liverpool Philharmonic Orchestra.

is on the paper, and aurally to what was coming from the computer. I had an element of control, but I would say not ownership.

(Transcription of a recorded interview with Hilary Browning on June 17th 2015)

I find these comments very encouraging. To me, they speak in recognition of the validity of my efforts to use open form as a way to cultivate a more creative involvement of the performer during the realisation of a musical work. Hilary's words, and the words of various other performers who were kind enough to perform/record previous compositions of mine (included in this portfolio) have boosted my motivation to continue on this particular compositional path, and to expand on the various concepts I have been developing so far.

References

Books, Articles and Essays

Cage, J. (2009) *Silence: Lectures and Writings*, Marion Boyars Publishers

Cox, C., Warner, D. (ed.) (2005) *Audio Culture: Readings In Modern Music*, The Continuum International Publishing Group Inc

Lewis, G. E. (2000), *Too Many Notes: Computer, Complexity and Culture in "Voyager"*, Leonardo Music Journal, Vol. 10, MIT Press

Maddalena, M., Dack, J. (ed.) (2012) *The Studio Di Fonologia: A Musical Journey 1954-1983 (Update 2008-2012)*, Universal Music MGB Publications srl

Nyman, M. (1999) *Experimental Music: Cage and Beyond*, Cambridge University Press

Pisaro, M. (1998) *Hit or Miss*, Edition Wandelweiser, URL: http://www.wandelweiser.de/michael-pisaro/texts.html#HIT_OR_MISS

Tutschku, H. (2014) *The Use Of iOS Devices In Recent Compositions Of Mixed Music*, Journal of the Japanese Society for Sonic Arts, Vol. 6 No.1 pp. 12-15, URL: <http://www.tutschku.com/the-use-of-ios-devices-in-recent-compositions-of-mixed-music/#> (last access July 2015)

Musical Scores

Brown, E. (1953) *Twenty-Five Pages*, Edition Peters

Brown, E. (1963) *Times Five*, Edition Peters

Cowell, H. (1935) *Mosaic Quartet*, Associated Music Publishers Inc.

Feldman, M. (1953) *Intermission 6*, Edition Peters

Feldman, M. (1963) *De Kooning*, Edition Peters

Stockhausen, K. (1956) *Klavierstück XI*, Universal Edition

Tutschku, H. (2013) *Under*, BabelScores

Wolff, C. (1964) *For 1, 2 or 3 people*, Edition Peters

Zorn, J. (1984) *Cobra*, John Zorn, NYC

Video Interviews

Interview with Michael Pisaro by Artist House Music, published in 2012, URL:
<https://www.youtube.com/watch?v=jsLbz4IyK0c> (last accessed November 2015)

Bailey, D. (1992) *On the Edge*, Channel 4, UK, URL:
<https://vimeo.com/album/1853892>, John Zorn on *Cobra* (last accessed November 2015)

Audio/Video Recordings

Brown, E. *Times Five*, New World Records (2006)

Brown, E. *Times Five*, performed by the Callithumpian Consort ensemble at Northeastern University, 2013, URL:
<https://www.youtube.com/watch?v=bZyklPZLF28#t=44> (last accessed November 2015)

Brown, E. *Twenty-Five Pages*, Sabine Liebner: piano, Wergo (2012)

Brown, E. *Twenty-Five Pages*, Steffen Schleiermacher: piano, Wergo (2011)

Feldman, M. *De Kooning*, New Millenium Ensemble, Koch International Classics (2000)

Feldman, M. *Intermission 6*, Sabine Liebner: piano, Wergo (2013)

Feldman, M. *Intermission 6*, Stephane Ginsburgh: piano, Sub Rosa (2001)

Lewis, G. E. *Voyager Duo 4*, performed by George Lewis and Roscoe Mitchel, Avant label (1993), URL: <https://www.youtube.com/watch?v=hO47LiHsFtc> (last accessed November 2015)

Pisaro, M. *Violin and Materials*, Johnny Chang: violin, recorded in 2008, URL: http://www.thewulf.org/media/legacy/music/23aug08/violinandtwomaterials_mpisaro.mp3 (last accessed November 2015)

Stockhausen, K. *Klavierstück XI*, Prodromos Symeonidis: piano, recorded in 2006, URL: <https://www.youtube.com/watch?v=UmCT69F03wo> (last accessed November 2015)

Stockhausen, K. *Klavierstück XI*, Herbert Henk: piano, Wergo (1987)

Wolff, C. *For 1, 2 or 3 people*, David Tudor: performer, New World Records (2013)

Wolff, C. *For 1, 2 or 3 people*, Hat Hut Records (1992)

Zorn, J. *Cobra*, performed by the New England Conservatory Ensemble, recorded in 2014, URL: https://www.youtube.com/watch?v=UdNdSJUf_8I (last accessed November 2015)

Additional Resources / Web links (last access November 2015)

www.ableton.com (Home of Ableton Live)

<http://adri.mdx.ac.uk/scambi-project> (Home of the ‘Scambi Project’)

<http://www.cnvill.net/mfhome.htm> (Morton Feldman Page)

www.cycling74.com (Home of Max)

<http://www.earle-brown.org> (The Earle Brown Music Foundation)

<http://kunsthal aarhus.dk/en> (Contemporary Art Centre)

<http://www.pd-tutorial.com/english/index.html> (Online tutorial for Pure Data)

<http://www.tutschku.com> (Website of composer Hans Tutschku)

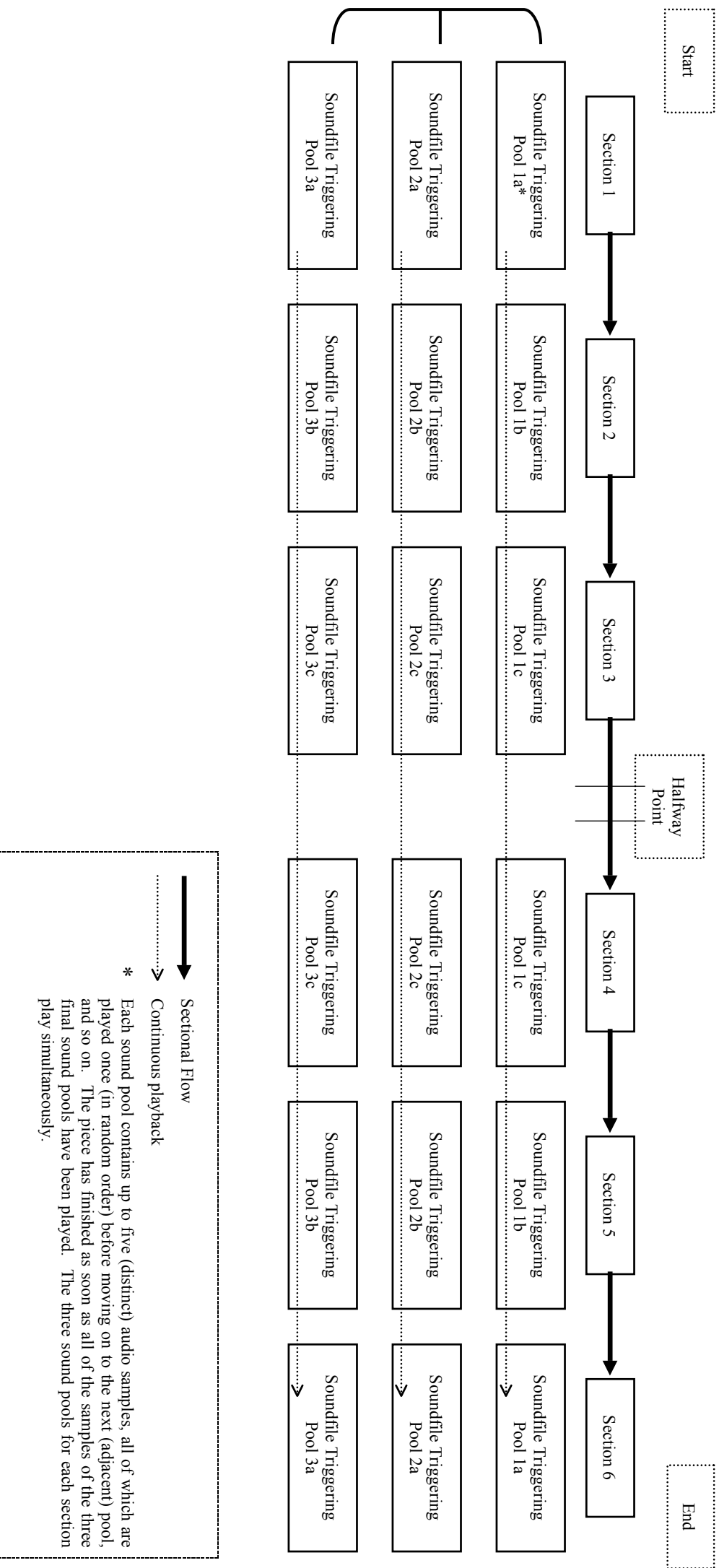
Technical Appendix

The technical appendix includes the Process and Signal Diagrams relating to the Max patches/Max-for-Live devices used in the following compositions:

Distant Cousins
Fline (GlitchLooper, OpenSec)
Skein
Together-Apart
Closer

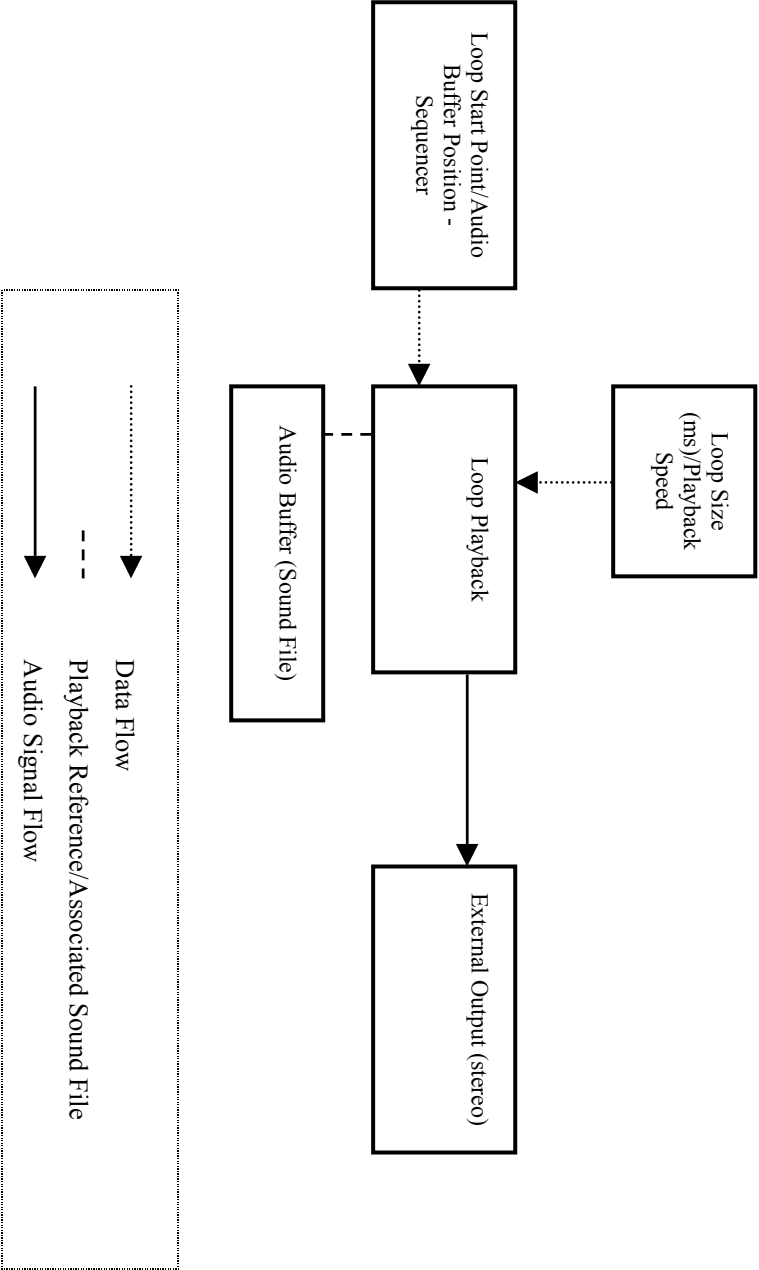
Supplementary text has been added giving further technical detail relating to the programming undertaken for selected Max patches. These patches can be found in the resources appendix (DVD/SD Card), as well as video demonstrations of the Max patches and iPhone/iPad apps in use.

Distant Cousin Playback Diagram

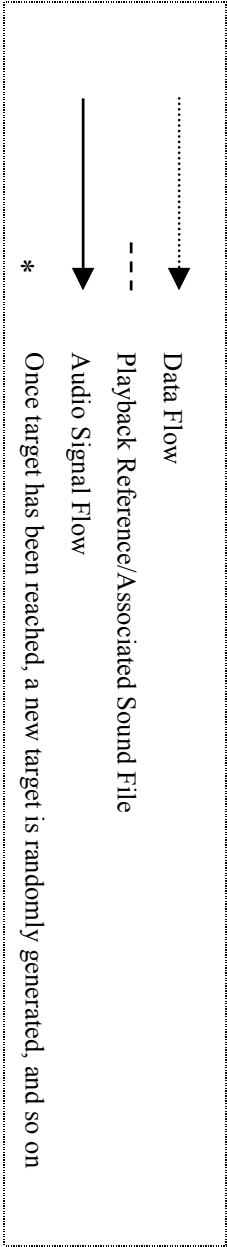
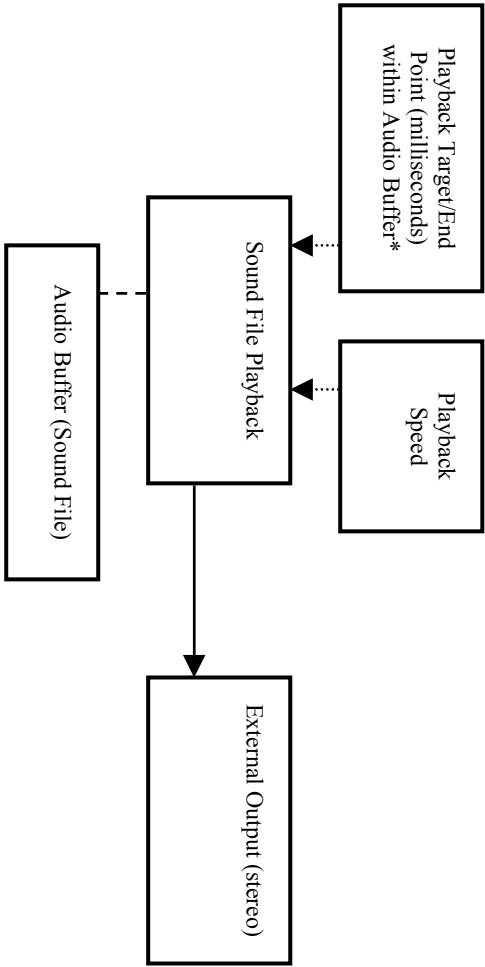


The playback diagram for *Distant Cousins* shows the structure of the Max patch. In the patch, each of the 18 sub-patchers facilitates playback of between 2 and 5 sound files in random order. Once all sound files within a sub-patcher have been played, *without* repetition, the piece moves on to the next section in the sequence and begins playback of those particular sound files. Each section (1 - 6) comprises 3 of the aforementioned sub-patchers, increasing the complexity of local variation by creating 3 layers of sound file playback.

GlitchLooper – Process and Signal Diagram



OpenSec – Process and Signal Diagram



The Process and Signal Diagram for the *GlitchLooper* shows the structure of the Max-for-Live device. Inside the *GlitchLooper* device, the *groove~* object facilitates sound file playback with additional control over the playback starting point within the audio file (in milliseconds), and the length of audio portion to be played back, or looped; this is important for the concept of this patch as it allows for the playing back of short segments within a larger sound file. The *itable* object provides a convenient way to display numerical values stored in a table. The X-axis shows the number of ‘addresses’ contained within the table, with each address able to store a single numerical value. The Y-axis shows the actual value for each address, which in this case, could be any number between 0 – 127. This makes available a total of 128 values, each of which can be recalled instantly by looking up any of the 128 addresses. For this device, I decided to continuously read through the table content in sequence from left to right, and back again, sending out a string of numbers which are then used to determine the playback position within the sound file. Since the values output are not necessarily in sequential order, the playback position will typically jump back and forth within the sound file, essentially re-ordering the original structure of the audio material. The playback behaviour of the *groove~* object can be changed, by simply drawing new lines onto the graphical user interface of the *itable* object. A *cycle~* object has been programmed to continuously output values between 0 – 127, back and forth in sequence, which, in turn, prompts the *itable* object to output the numerical values of the corresponding addresses (0 – 127). This maintains the automated process of sending out the stored values. Additional control over the speed of sending out the values, and the loop size itself has been implemented. If the speed with which the *itable* object outputs values (determining loop starts) is really

slow, with a short loop size selected, very short loops can be created, which repeat insistently until the *itable* object moves on to the next value. Alternatively, if the loop size is set to ‘longer’, loops will ‘fill out’ the entire span of one cycle *without* the pronounced local repetition.

The Process and Signal Diagram for *OpenSec* shows the structure of the Max-for-Live device. Inside the *OpenSec* device, the *play~* object is used to play back portions of a single sound file stored in the *buffer~* object. The *line~* object, in combination with two random number generators (with limited range), determines the length of portion of audio to be played back from within the sound file, as well as the speed at which it plays back. This means that the order, in which individual sections are played back, at which speed, and for how long, is unpredictable. However, one aspect, which is determinate, is the fact that playback can only occur within global boundaries as set by the size of the sound file used.

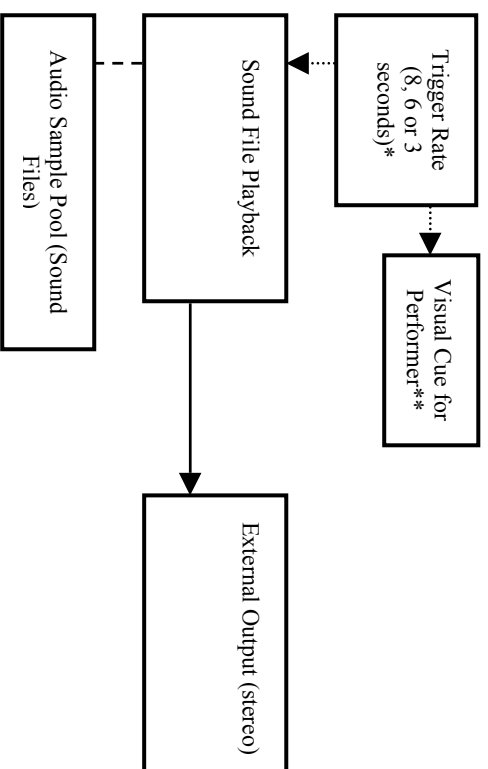
When comparing the two devices above, the difference between the two programmes in the overall sonic result becomes apparent. The *GlichLooper* produces relatively short sound events, often with abrupt changes, not unlike sounds generated through granular sampling, or those heard in Glich music. The algorithm in *OpenSec*, on the other hand, produces longer sounds with smoother envelopes and coherent phrases.

The sound material used for the accompaniment are recordings I had made of myself improvising at the piano using extended playing techniques, mainly playing/striking the instrument anywhere *but* the keyboard. The sounds came from strumming the strings inside the soundboard, and playing the frame of the instrument rather like a percussive instrument. I imagined that the electronic part would take on the role of a prepared piano.

The Graphical User Interfaces (GUIs) reveal only certain elements of the full devices/programming in order to keep operation of the electronic part simple. The key parameters are comprehensibly laid out and can easily be adjusted, even during performance, if desired. Multiple instances of a device can effortlessly be set up and organised within a single software environment (i.e. Ableton Live), and further signal processing using Ableton Live's own audio effects, such as Equalisation (EQ), Compression and Reverb can be applied.

For the included audio recording of *Fline* I had four instances of the respective Max-for-Live devices running for each movement. This helped to produce a greater polyphony of sounds. Furthermore, each device had a different portion of the original sound recording loaded, which guaranteed a mixture of different sounds played simultaneously.

Skein – Process and Signal Diagram



.....> Data Flow

- - - Playback Reference/Associated Sound Files

→ Audio Signal Flow

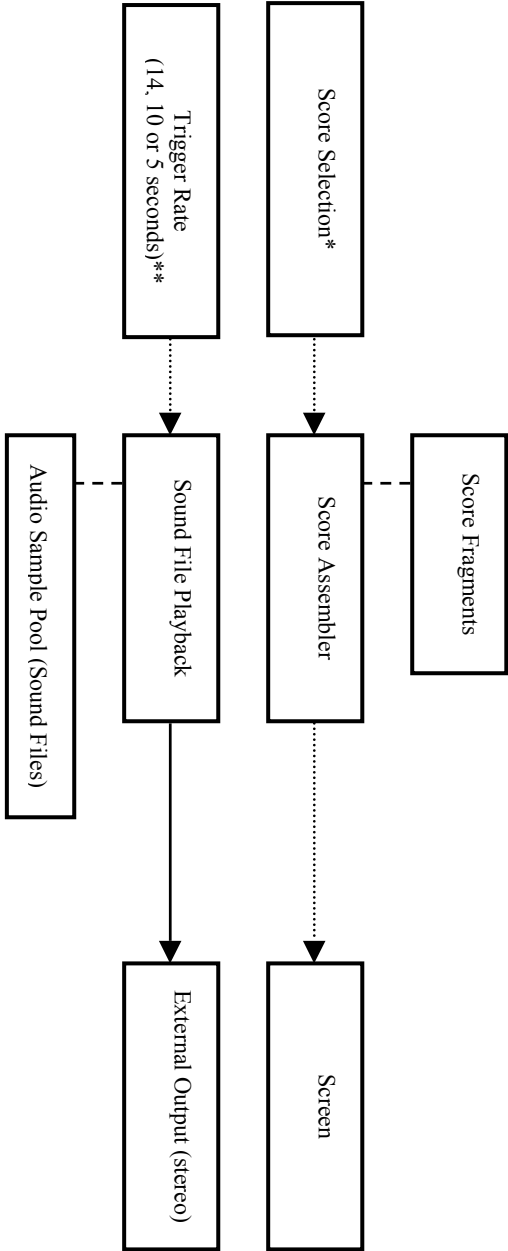
* The trigger rate changes automatically from 8 to 3-second-gaps over the course of three minutes, after which the playback/sound density is at its highest. At this point the sequence is reversed over the remaining three minutes.

** The changing trigger rate is signaled to the performer to allow for the adjustment of their own playing intensity (i.e. gaps between score fragments), mirroring the shifts in sound texture.

The playback diagram for *Skein* shows the structure of the Max patch. In the patch, I implemented a visual cueing system as a means to guide the performer to equally adjust the gaps between score fragments played, and to go along with the overall shift of intensity from low to high and back to low. Accordingly, each change in sound file trigger rate is signalled by a traffic light system (green, orange and red), representing the three forms of density, i.e. low (one sound file triggered every eight seconds), medium (every six seconds) and high (every three seconds). At three seconds the sound texture is at its most dense, as more and more sound files begin to overlap. Three minutes into the performance marks the halfway point, after which the playback density gradually decreases again.

I adapted the original Max patch for *Skein* for Pure Data, and with the free *MobMuPlat* app acting as the Graphical User Interface, I was able to run the programme on a mobile device.

Together-Apart – Process and Signal Diagram

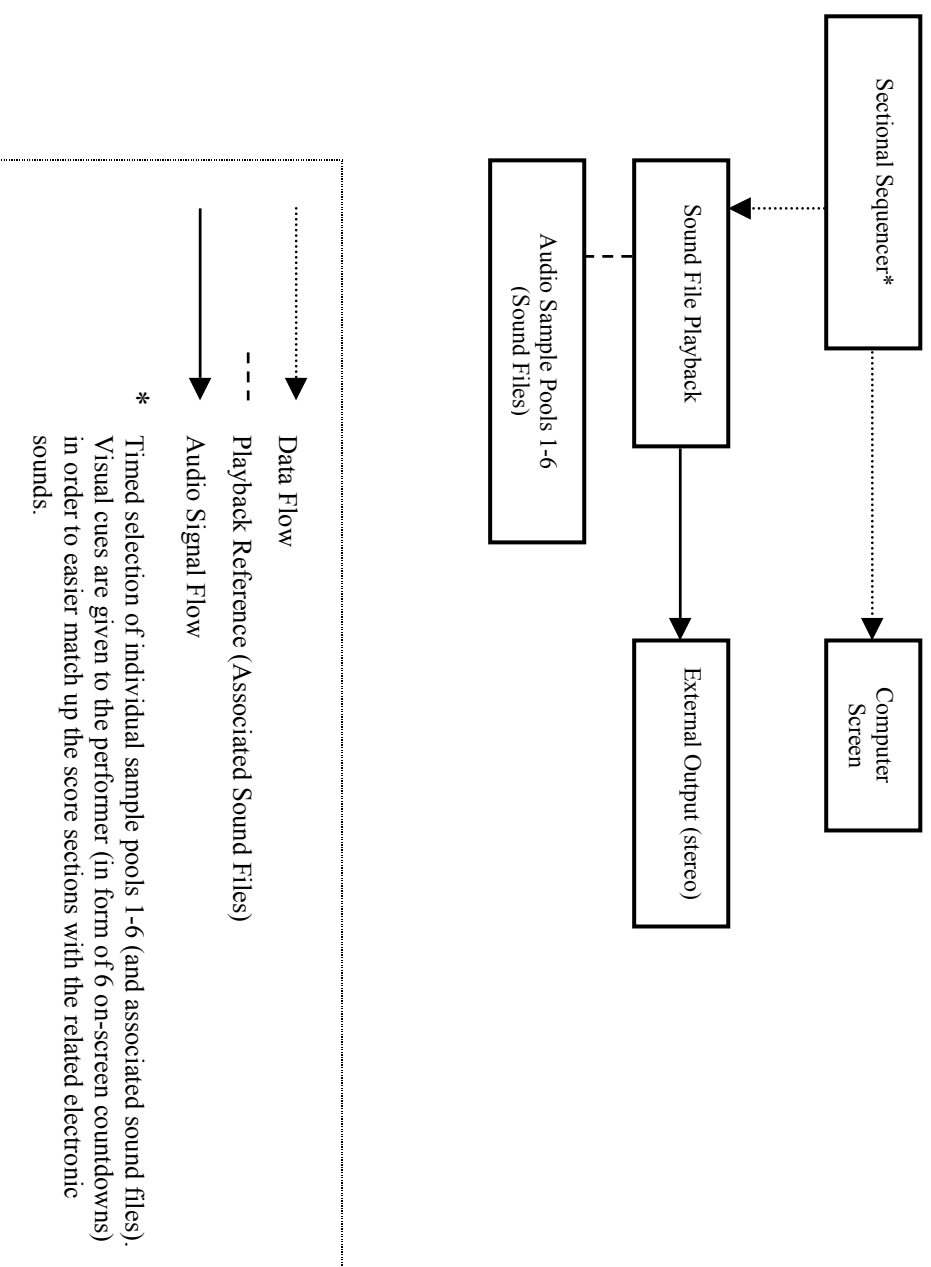


* The performer selects score combinations in real time.

** The performer can change the trigger rate at any point during the performance.

The playback diagram for *Together-Apart* shows the structure of the Max patch. It provides three different settings for the sound file trigger rate (as with *Skein*), however, there is no automatic timing system guiding the performance. Instead, the performer may change the rate at any time during the piece, shifting the intensity to suit the way that the score fragments are being interpreted. Inside the patch, the ‘metro’ object determines the rate at which new sound files are triggered. The three options are set to be 14, 10 and 5 seconds long. A sub-patcher labelled ‘SCORE’ contains the score images and Max objects, which together form the GUI/Score layout as presented on the *Mira* App for performer interaction. It includes the controls to change the playback rate of sound files in the top-level patch, as well as to start and stop the playback of sound files in general. A second sub-patcher, called ‘Samples’, comprises all of the sound files used for the electronic accompaniment. Inside there are four ‘polybuffer~’ objects, each of which holds the same 39 samples used throughout the piece, allowing for a total of four sound events to play simultaneously. The ‘counter’ object in the top-level patch makes sure that none of the four ‘polybuffer~’ objects are immediately re-triggered, allowing even the longer sound files to finish playing and not be cut off.

Closer – Process and Signal Diagram



Resources Appendix (Data DVD and SDHC Card)

1. Audio Recordings

Credits:

1.1	Distant Cousins (Version 1)	
1.2	Distant Cousins (Version 2)	
1.3	Flinch (First Movement)	Piano: Ian Buckle
1.4	Flinch (Second Movement)	Piano: Ian Buckle
1.5	Skein (Version 1)	Clarinet: Mandy Burvill
1.6	Skein (Version 2)	Clarinet: Mandy Burvill
1.7	Together-Apart	Piano: Per Nielsen
1.8	Closer (Version 1)	Violin: Emily Jobling, Cello: Charles Gibbons
1.9	Closer (Version 2)	Violin: Emily Jobling, Cello: Charles Gibbons
1.10	39	Players from the Ensemble 10/10
1.11	Hope Street (Version 1)	Players from the Ensemble 10/10
1.12	Hope Street (Version 2)	Players from the Ensemble 10/10
1.13	I Can Feel His Mouth	Soprano: Miao He, Piano: Michael Beiert
1.14	Hidden Within (Version 1)	Cello: Hilary Browning
1.15	Hidden Within (Version 2)	Cello: Hilary Browning
1.16	iTunes Playlist	
1.17	VLC Playlist	

2. Electronic Accompaniment Material (Software, Audio Samples)

2.1	Distant Cousins (Max patch)
2.2	GlitchLooper (Max patch)
2.3	OpenSec (Max patch)
2.4	Flinch (First Movement) (Ableton Live Project File, MaxForLive device, audio samples)
2.5	Flinch (Second Movement) (Ableton Live Project File, MaxForLive device, audio samples)
2.6	Skein (Max patch, audio samples)
2.7	Together-Apart (Max patch, audio samples)
2.8	Closer (Max patch, audio samples)
2.9	39 (Max patch, audio samples)

- 2.10 Hope Street (Max patch, audio sample)
- 2.11 I Can Feel His Mouth (Max patch, audio samples)
- 2.12 Hidden Within (Max patch, audio samples)

3. Video Demonstrations/Examples

- 3.1 Distant Cousins, Max patch in Presentation Mode
- 3.2 Flinc (First Movement), Ableton Live Project – video, no sound
- 3.3 Flinc (Second Movement), Ableton Live Project – video, no sound
- 3.4 Skein, running on iPhone – video and sound
- 3.5 Together-Apart, running on iPad – video and sound
- 3.6 Closer, Max patch in presentation mode
- 3.7 39, Max patch in presentation mode